Beginning Its 30th YEAR

NOVEMBER, 1953

Industrial FINISHING

Published Monthly in the Interest of Product Cleaning and Painting by Practical Publications, Inc., 1142 N. Meridian Street, Indianapolis 4, Ind.

WHATEVER YOUR APPLICATION...

...It makes no difference whether it be

hand spray...dip method

electrostatic

spray painting

or litho coating

LILLY VARNISH COMPANY can supply the exact finish or coating material to meet your individual requirements.

Development and production of Industrial Product Finishes for specific use is an important part of our technical services designed to help manufacturers in the field of finishing. Three LILLY plants are serving industry with all types of Industrial Product Finishes: VARNISHES . . . LACQUERS . . . ENAMELS . . . METAL LITHO COATINGS . . . STAINS and WOOD FILLERS.

Lilly **VARNISH COMPANY** · **Indianapolis, Indiana**

AFFILIATED PLANTS AT GARDNER, MASS. AND HIGH POINT, N. CAROLINA

such as the new aluminum siding for modern homes, will fare better if it's protected with

POLYMERIN

The ORIGINAL speed-bake finish.

Aluminum siding made continuously from .025" aluminum strip is roll coated with POLYMERIN and baked one minute at 490°F. BEFORE being fabricated and cut to length.

This pre-painting, post-forming technique:

1. **ELIMINATES HANDLING AND WASTE.**
2. **INSURES UNIFORM FILM THICKNESS, COLOR AND GLOSS.**
3. **CUTS PRODUCTION TIME AND COSTS.**

And if it's DURABILITY you want, POLYMERIN-finished siding has been in service for FOUR YEARS WITHOUT A SINGLE FINISH FAILURE!

POLYMERIN IS BEST UNDER THE SUN.

Interchemical Corporation

Finishes Division

FACTORIES: CHICAGO, ILL • CINCINNATI, OHIO • ELIZABETH, N. J.
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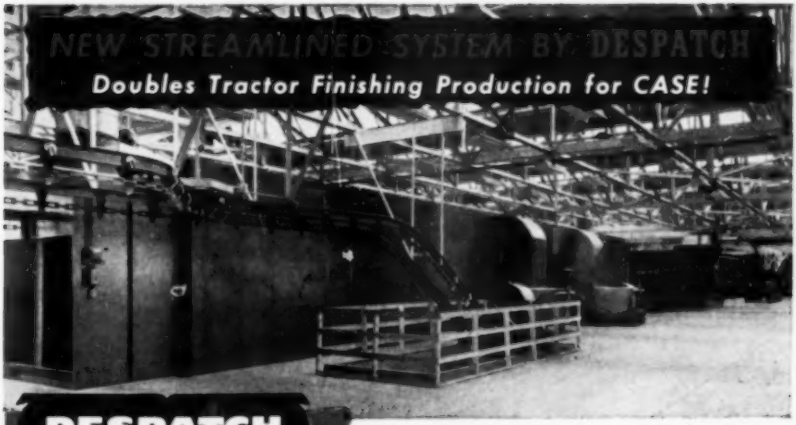
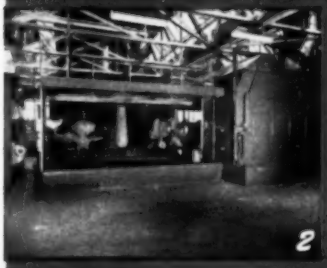


DESPATCH



A FINISHED TRACTOR *every 5 minutes!*

Tractor finishing at the J. I. Case plant, Rock Island, Ill., has been doubled and quality of finish raised to a new high with this modern finishing system designed, built and installed by Despatch. Housed in a new, well lighted building the system is giving Case tractors a rich, durable baked on finish in the familiar Case Flambeau Red. The operation includes washing, painting and finish baking.

1. 600-ft. continuous conveyor enters 3-stage washer where tractor gets a 160° F. phosphate wash, cold water mist bath, and 180° F. hot water rinse.
2. Tractors are spray painted in staggered water wash booths. Paint is heated to 170° F. —eliminates need for thinner and allows closer spraying to cut down overspray.
3. A lasting, weather resistant finish is baked on at 225° F. in this 96-ft. oven heated by steam from the Case central steam plant. Emerging from the oven, tires and other accessories are added.

Let Despatch Modernize Your Finishing Operations

Replace your obsolete finishing system with a modern Despatch system engineered to fit your needs. Increased production, higher quality and lower costs will result.

Write, wire or call Dept. E for details.

DESPATCH OVEN COMPANY

Minneapolis Office: 619 S. E. 8th Street

Chicago Office: 4334 N. Broadway

Sales Offices in all Principal Cities

Finish

a part of
the prestige
earned by

The Georgetown Galleries
SOLID MAHOGANY

Through excellent craftsmanship and careful attention to detail, the Georgetown Galleries have earned an enviable reputation in the field of solid mahogany furniture. This handsome Goddard design is set off by hand finished, solid brass hardware, and by a rich, nut brown finish. Specially developed in our studios, it recreates the patina of the old world. It is hand padded and lightly distressed to further enhance the distinctive character of the piece.

The Better the Finish, the Better the Buy

GRAND RAPIDS VARNISH CORPORATION

GRAND RAPIDS, MICHIGAN

Makers of the Famous Guardsman Finish and Guardsman Cleaning Polish

NOVEMBER, 1953
Vol. XXX, No. 1

ECA

A monthly magazine for finishing room and paint shop foremen, production superintendents, chemists, purchasing agents and company executives of industrial plants where product surface cleaning and finishing are major operations in the manufacture of parts and products of all kinds.

Industrial FINISHING

W. H. ROHR, Editor P. C. BARDIN, Associate Editor

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30 THIRTIETH YEAR OF PUBLICATION

Where to Get Salesmen. Quoting a few paragraphs from "The Metal Showman", the newspaper of the National Metal Exposition held Oct. 19-23 in Cleveland, Ohio:

"Watch the boys who know how to sell, who know how to interest a customer or a prospect, who know how to talk the siren song of the dotted line to willing ears. Oh, you'll get a real thrill out of some of these seasoned, high-powered lads who were on the firing line years before the art was shouldered aside by order-takers!

"You may also get a little envious of firms who have such men on their staffs. You'll wish you could hire a couple of dozen like 'em. You'll go looking, too. But, where do you look for real salesmen today?

"The answer is pretty clear; you don't. You begin right now to develop salesmen. You pick up the dusty, long-forgotten business of training men to go out into the markets of the land and get rid of all the stuff you are equipped to build. You do this, simply because you'll discover there just aren't enough real salesmen left to go around."

* * *

Painting Ice. When called upon to paint an ice skating rink for a carnival, a St. Louis contractor found that it could be done with a spray gun. After the arena had been flooded with 1½-in. of water and frozen solid, a special ice paint, colored blue, was sprayed over the ice. It froze almost immediately. To give a varnished look, water was sprayed over the paint coating. About 125-lbs. of ice paint in powdered form was used for the rink. When the skate runners tracked the ice, the tracks refilled with the

More products are being made of aluminum, for example, even forged disc truck wheels, like this one recently added to the line of The Budd Co. They are lighter in weight, have the required strength and possess many other desirable features. It means an ever increasing volume of aluminum parts cleaning, surface conditioning and finishing.

We Repeat *Again and Again and AGAIN!*

There is **no** better value **anywhere** for quality finishing than

No. 1450 PERMANENT WATER WHITE Lacquer
No. 1545 PERMANENT WATER WHITE Sealer

For those new, modern, light transparent fiinishes

or

No. 8800 HI-SOLIDS Lacquer (over 32%)
No. 1830 COMPANION SEALER

For full bodied, regular tones, used in conjunction with

DOLAN'S STAIN-FILL or TONE-FILL

THEIR REASONABLE PRICES WILL SURPRISE YOU!!!

Drums of each will be shipped, with a positive guarantee that you will find them **better** values than your present products or you may return the unused portion for **full** credit.

V. J. DOLAN & COMPANY, INC.

Manufacturers of "Unquestionable Quality"
INDUSTRIAL FINISHES
1830 N. Laramie Avenue Chicago 39, Ill.
Berkshire 7-0100

SPRUANCE IS IN THE LACQUER BUSINESS

We have been supplying the furniture trade and the makers of television cabinets finishing materials from the bare wood to the final operation.

One of our specialties is Water White Lacquer considered by many to be the finest ever made. If you are interested in the blond type finishes so popular today, we have a water white lacquer and a companion sealer to meet the most exacting specifications.

Our lacquers are formulated to rub. They will withstand cold checking. They are durable and tough. If you want one that is alcohol resistant we can make it. Anything in lacquer — Spruance can make it. When you think of lacquer, think of Spruance.

SPRUANCE IS IN THE LACQUER BUSINESS

THE GILBERT SPRUANCE COMPANY

PHILADELPHIA 34, PA. • WINSTON-SALEM, N. C.

color. Thus ice may be painted in more than one color, or in patterns. A brush cannot be used, as the paint freezes so rapidly that the brush will leave streaks.

* * *

Want Less Noise? Silencing factory noises by various methods, materials and facilities is one of the services that Burgess-Manning Co., Libertyville, Ill., plans to emphasize and publicize.

Long rated as a leader in the silencing field, the Burgess-Manning Co. provides an extensive line of acoustic devices which, in addition to eliminating noise, incorporate the integral advantages of air cleaning, heat recovery, spark arresting, surge control and others.

* * *

Parcel Post Scale. A special warning to all business firms using parcel post for substantial mailings is issued by the National Association of Scale Manufacturers. When new parcel post rates went into effect October 1, 1953, the computing charts (which figure the amount of postage due) for virtually every parcel post scale in the country became obsolete.

Scale manufacturers are busy making as many of the new charts as they can, but, during the changeover period they are not able to keep up with the demand. Firms are advised to contact their scale dealer or maker early about obtaining a new chart in order that there will be less delay. This change is for "parcel post" only; the rates for first class and air mail are not affected.

* * *

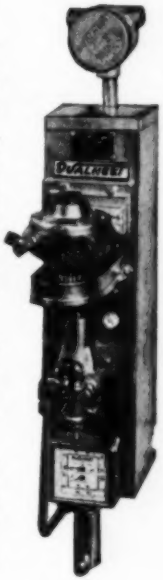
G. E. Exhibit Trailer. A streamlined exhibit trailer featuring demonstrations and applications of General Electric specialty instruments for increased productivity began a year's

DUALHEET
Paint Heaters For Industry

MODERNIZE Your Finishing Technique With DUALHEET HOT SPRAY...

And Get These Dualheet Features!

- Used singly, wall mounted or portable—or, in "Tandem" style ganged together in one outer jacket.
- Two styles: WITHOUT Recirculating Pump and Motor where constant flow of paint is used; WITH Recirculating Pump and Motor Attachment where production is intermittent.
- Exclusive DUALHEET feature places controlling thermostat direct in paint to minimize temperature variation.
- Exclusive design and construction provide the SMALLEST, yet the most POWERFUL Paint Heater approved by Underwriters Laboratories.



Model 250-R Dualheet with Recirculating System

Write for LATEST LITERATURE—Compare DUALHEET'S Many Features!

Industrial Factory representatives write for details.

DUALHEET incorporated
3350 West 137th Street · Cleveland 11, Ohio
West Coast: 10817 Long Beach Boulevard, Lynwood, California

When the call is for a
PRIMER-SURFACER
that's Production-Proved
CALL FOR
L3714
SEA-LAC
L3714
Bakes hard in a half hour at 275° F. Air dries to wet sand in 4 to 6 hours. Takes top coat of lacquer after 10 minutes air-dry. Shows very little absorption of top coat. Good for wood, masonite, steel, treated aluminum. Send for samples.
Duralac Chemical Corp.
84 LISTER AVE., NEWARK 5, N. J.

tour of the United States on November 2. It will make more than 250 stops in key industrial areas and will be inspected by more than 15,000 instrument users throughout the nation, according to Hudson S. Day, manager of specialty instrumest sales for G-E's Meter and Instrument Department.

The traveling exhibit will emphasize widening present-day applications of instruments in production testing, process and quality control, laboratory analysis, etc.

* * *

Heat Insulation. Hydrous calcium silicate pipe and block insulations for high heat ranges are being used in an increasing variety of industrial applications, according to Owens-Corning Fiberglas Corp., distributor of the products.

Effective to a heat of 1200° F., the pipe and block, known as Kaylo Heat Insulations, are used as industrial insulation for a variety of equipment. Kaylo heat insulation is made of a chemical compound of lime and silica.

* * *

Red Safety Cans. A new color, flame red, now features Justrite Safety Cans in all sizes. . . . Factors in the selection of the new color were instant identification, high visibility and sharp contrast to fire fighting apparatus. The new finish eliminates any possible confusion between regular fire fighting equipment and the Justrite cans which, in most cases, are used for flammable liquids.

The flame red color complies with the new "Safety Color Code" developed to provide instant identification of safety equipment and safety hazards. Its adoption has been suggested for several years by Safety Engineering groups and sections of the Bureau of Mines.

(Continued on page 126)

room with bath . . . $124.50 per day

Too much?
Recently a large appliance manufacturer found he'd been paying it for years—$124.50 per day for 10 spray booths! He found his dollars were being burned up by production shut-downs, extra time and money for maintenance, spoiled production, unreclaimable paint, and booth operating troubles. How much are these things costing you?

CUT COSTS with DuBOIS

SPRAY BOOTH MAINTENANCE

Here's what you get when you do business with DuBois:

1. Thorough analysis of your operations by trained and experienced personnel.
2. Installation of prescribed specialized compounds:
   KLARIFIANTS . . . water-wash compounds to effectively control overspray
   FILMITES . . . coatings for dry areas of spray booths
   STRYPP . . . for periodic purging of old paint deposits in the hydraulic system

FREE . . . authoritative reprint:

PROBLEMS OF SPRAY BOOTH MAINTENANCE

. . . . yours for the asking, a survey of the practical aspects of paint booth maintenance—how to save operating costs.

The DuBOIS Co., Inc.

Cincinnati 3, Ohio • Los Angeles 33, Calif.

Serving Industry Since 1920

New paint spray gun weighs only 15 ounces

BINKS MODEL 26 IDEAL FOR LIGHT PRODUCTION SPRAYING —AND FOR WOMEN OPERATORS

Binks Model 26 Spray Gun is especially designed for applications where the gun must produce high-quality finishes, yet be extremely light in weight. It is ideal for stenciling, blending, touching-up products coming off assembly lines and where women operators are doing light production spraying.

This featherweight gun increases efficiency by reducing operator fatigue. It saves money by supplying quality features normally found only in more costly guns. For example, it has a brass and steel fluid passage to protect the gun body from the corrosive attack of certain paints and fluids.

Model 26 can be used to spray lacquers, synthetic enamels, paints and other finishes and coatings of light or medium viscosity. Send coupon TODAY for details, including prices.

Send for Bulletin 26! This bulletin tells how the featherweight Model 26 Spray Gun saves you time and money. Facts backing each claim thoroughly illustrated. And here you'll find complete specifications with prices included. See your Binks industrial distributor for a copy or send in coupon.

MAIL COUPON today for Bulletin 26

Binks Manufacturing Company
3116-40 Carroll Ave., Chicago 12, Ill.

Gentlemen: Please rush my FREE copy of your Bulletin 26 describing your new featherweight Model 26 Spray Painting Gun

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE ____ STATE ____

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EVERYTHING FOR SPRAY PAINTING

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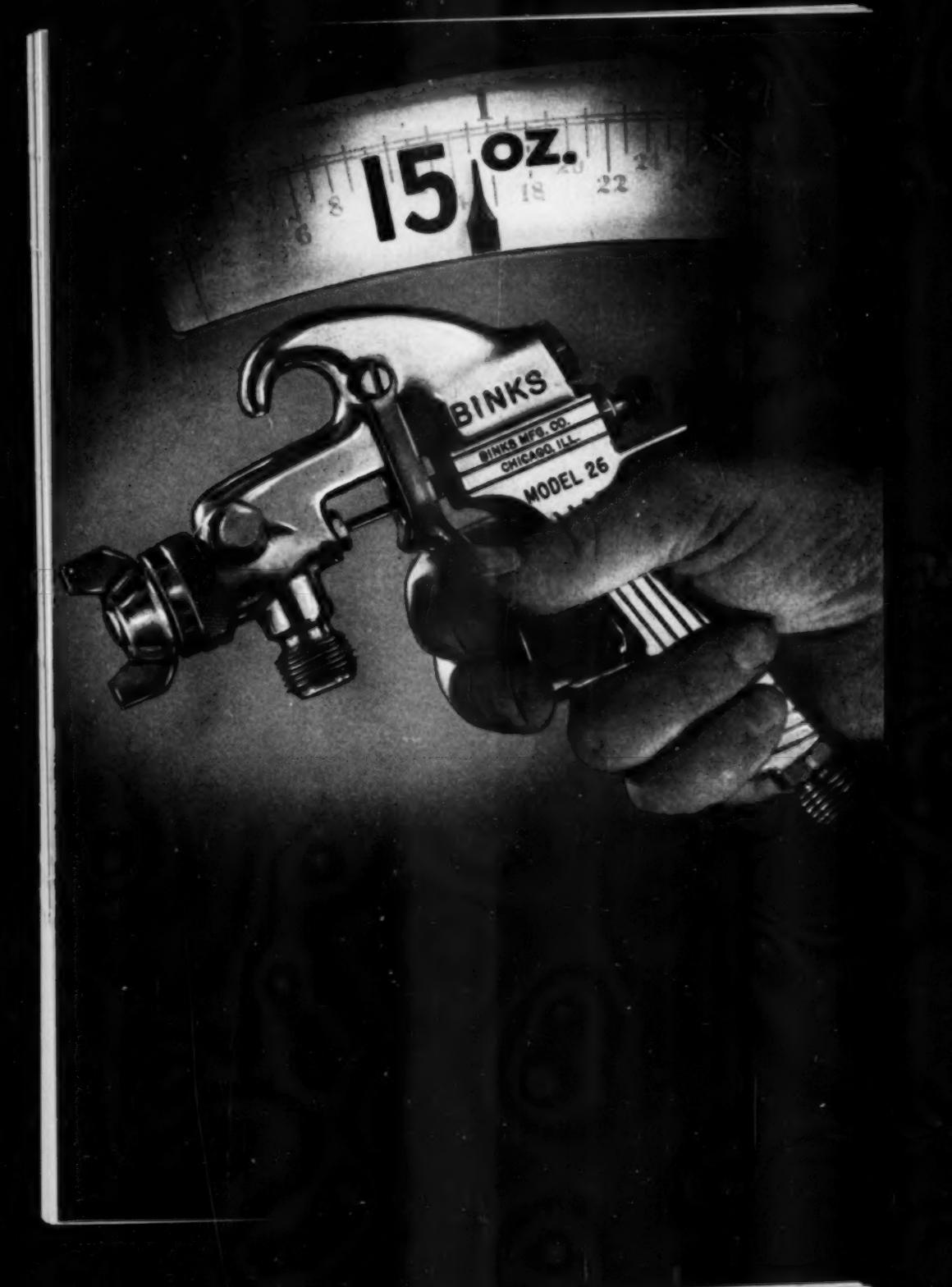
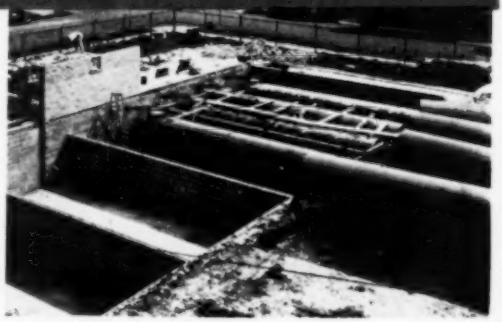

15 oz.
BINKS
BINKS MFG. CO.
CHICAGO, ILL.
MODEL 26

TOUSEY—service to customers



The prompt and accurate handling of orders, both large and small, has been instrumental in building Tousey's reputation for service.

Large underground tanks with close to a quarter-million gallon capacity provide ample storage for an endless flow of thinners and mixes to production lines.

Huge warehouse stocks of pigments and other raw materials make it possible to expedite orders without undue adjustments in regular working schedules.

Tousey's long and varied experience gives customers the assurance that each order will be uniformly exact in color and quality.

Let Tousey help with your finishing problems—send us your specifications today.

TOUSEY PRODUCTS

DURACOTE for DURABILITY

TOUSEY VARNISH CO.

520 W. 25th St., Chicago 16, Illinois

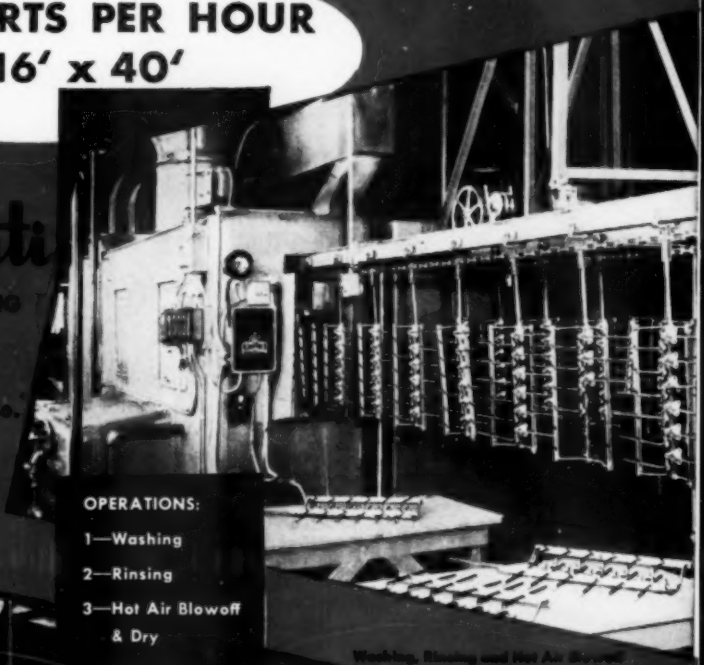
1000 PARTS PER HOUR in Space 16′ x 40′

ENGINEERED BY

Cincinnati

CLEANING AND FINISHING MACHINERY CO.

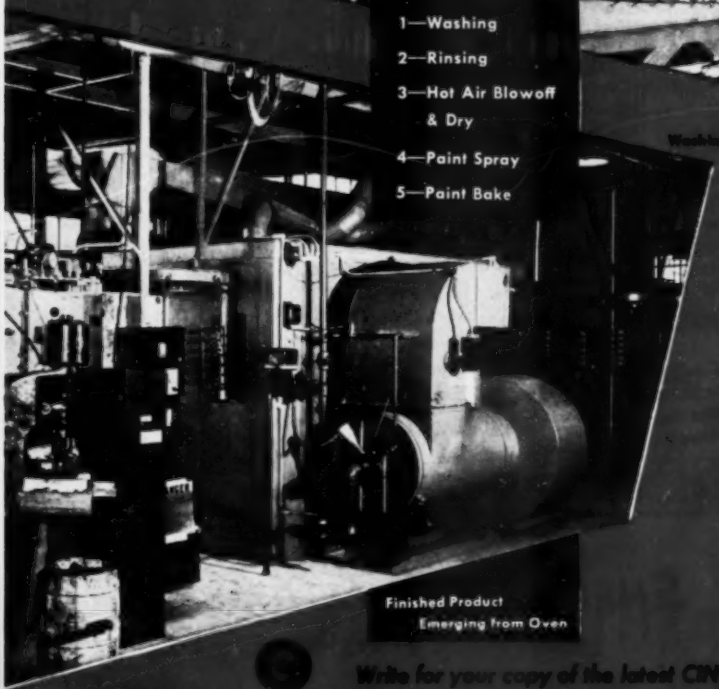
at The George R. Carter Co.
Detroit, Mich.



Washing, Rinsing and Hot Air Blowoff

OPERATIONS:

1—Washing
2—Rinsing
3—Hot Air Blowoff & Dry
4—Paint Spray
5—Paint Bake



Finished Product Emerging from Oven

Unusually compact, this CINCINNATI-engineered small parts finishing system has proved to be a major improvement in The George R. Carter Company's production facilities. Complete finishing operations on automobile trim hardware, parts are performed efficiently and quickly.

With a minimum of adaptation this Cincinnati system can handle a large variety of small parts. Representative installations have shown savings up to 75% in time and cost.

Write for your copy of the latest CINCINNATI catalog today!

Cincinnati CLEANING & FINISHING MACHINERY CO., INC.
2206 HASEMAN STREET SHARONVILLE, OHIO

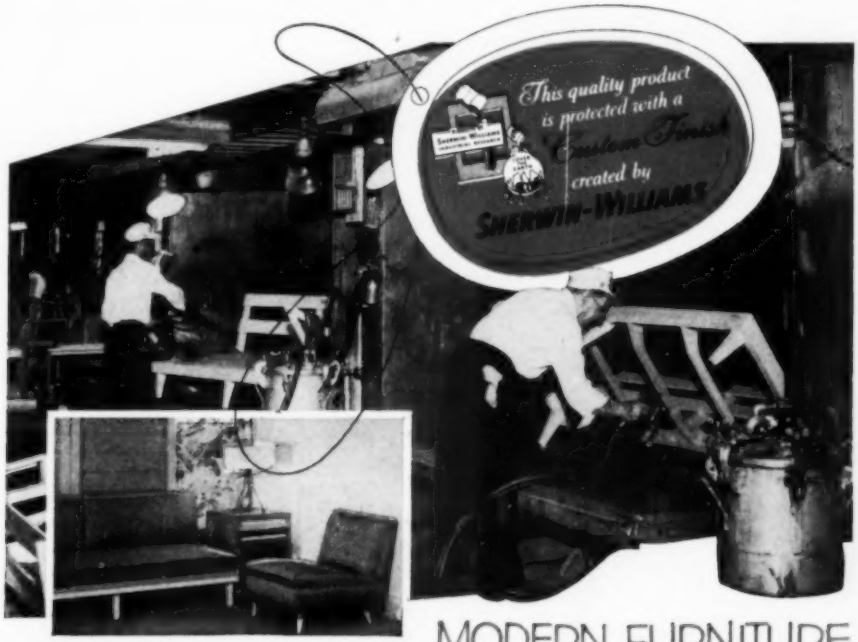
You're ahead 3 WAYS with KEM LUSTRAL® ENAMEL

Simplify the job . . . do away with need for many special enamels . . . get the benefit of volume production of highest industrial quality materials! If you use enamels for any purpose, or any product—wood or metal—KEM LUSTRAL's multi-usefulness may show a way to important savings.

Get the facts about this top-quality, versatile industrial enamel. It's one of a complete line of Sherwin-Wiiliams product finishes especially developed to meet production-line requirements. Check the classified telephone directory for location of nearest Sherwin-Williams Branch—ask for brochure KL-511. Or write The Sherwin-Williams Co., General Industrial Division, Cleveland 1, O.

Services of trained industrial finish specialists available in your area through nearest Branch

SHERWIN-WILLIAMS
INDUSTRIAL FINISHES



Imperial's new "Twentieth Century" Lounge . . . currently offered in "Wheat" and "Ebony" finishes, employing special lacquer finishing systems developed in cooperation with Sherwin-Williams Furniture Technical Service.

MODERN FURNITURE
from OLD New Orleans
features the best-known name in finishes!

The old French Quarter of New Orleans is famed for its historic buildings, quaint streets and picturesque shops. But one of its leading attractions for furniture dealers is the modern line of quality furniture manufactured there by IMPERIAL, INC. Sherwin-Williams Custom Finishes . . . used exclusively to help maintain highest manufacturing standards . . . provide the latest advances in application properties, beauty and lasting protection.

To further emphasize quality . . . to provide an *extra* selling feature . . . every piece of Imperial furniture displays a Sherwin-Williams custom finish identification tag. It's a finishing touch that enables prospects to see for themselves . . . helps dealers feature the finish as an *added* sales clincher.

Make use of the added sales appeal of Sherwin-Williams finish identification tags or seals on products you sell. There's no easier way to say "This is a quality finish" to so many people, so quickly! The Sherwin-Williams Co., General Industrial Division, Cleveland 1, Ohio.

SHERWIN-WILLIAMS

INDUSTRIAL FINISHES

These famous

CHROMALOX ELECTRIC HEATERS

solve hundreds of heating problems

efficient, dependable electric heat

Easy to Install CHROMALOX Electric Heaters give clean, dependable, accurately controlled heat where and when heat is needed. They produce uniform and accurate temperatures by automatic or manual control. Low initial costs, low installation costs and low operating costs are among the advantages of using CHROMALOX Electric Heaters in tanks, ovens, air ducts, kettles and other applications requiring economical and efficient heat.

Discuss your baking, degreasing, curing, and other heating requirements with a CHROMALOX Application Engineer. Let him show you how CHROMALOX Electric Units can help do your heating jobs more efficiently at less cost.

for drying, degreasing, baking, etc.

CHROMALOX

ELECTRIC HEAT FOR MODERN INDUSTRY

EDWIN L. WIEGAND COMPANY

7559 Thomas Boulevard, Pittsburgh 8, Pa.

WANT MORE FACTS?

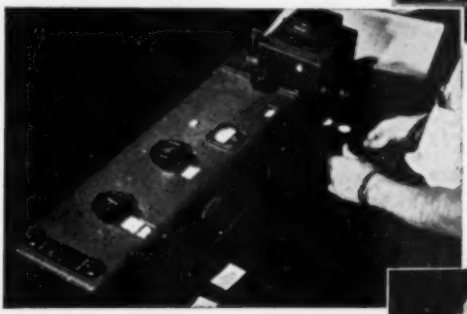
Request the useful booklet "100 Ways To Apply Electric Heat." It contains photographs and drawings showing Chromalox Electric Heaters at work in plants throughout the United States. Write today for your copy.

IC-54

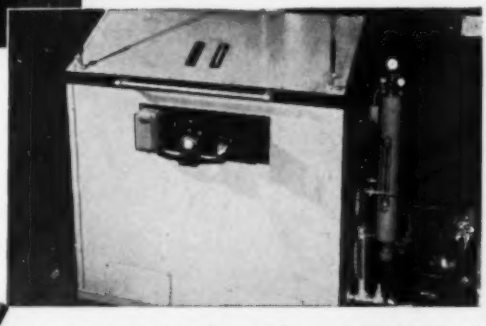
Finishing problems? Call on our

20 HAPPY WORRIERS!

THE PRIDE AND JOY of Jamestown Finishing Products Inc.'s new modern plant is the laboratory with its 20 research chemists — all expert at "worrying out" solutions to your finishing problems. Here a workman is checking the gloss, reflective quality and uniformity of color of a batch of AVALEX lacquer.



SPECTROPHOTOMETER — Jamestown chemists constantly analyze, study and improve to maintain the superiority of AVALEX industrial finishes. This spectrophotometer scientifically and accurately measures color values to make sure the finished product is just what the customer ordered.



TEST CABINET subjects Jamestown finishes to rigorous salt-fog corrosion and humidity corrosion tests. These are but a few of the quality control measures that make AVALEX industrial finishes worthy of your product. Let us help you with your finishing problems!

AVALEX lacquers, enamels, stains, varnishes and other industrial finishes are products of

JAMESTOWN FINISHING PRODUCTS, INC.

Established 1911

Jamestown, N. Y.

"BETTER FINISHES THROUGH RESEARCH"

COLOR STYLISTS at the Glidden Color Studios will prescribe colors for your unit which harmonize with all that's new in floor covering, fabrics, and wall colors, to give your product maximum sales appeal.

CORROSION TEST PROVES extreme corrosion resistance of NU-PON Primer film. In 400 hour test NU-PON Primer panel at left was not eroded while modified alkyd film pitted and flaked.

CORRECT COLOR ON THE *Outside...*

CORROSION-RESISTANCE *Inside*

AIR CONDITIONERS made more salable, more durable by two Glidden Services

Glidden offers you valuable assistance on two key problems in the finishing and styling of your air conditioners.

First, Glidden can supply you with the ideal protective finish for unit interiors—moisture resistant, corrosion resistant NU-PON Primer. This new coating is ideally suited for application by flow-coating in a film thickness half that of standard alkyd primers.

Second, The Glidden Color Studios offer you custom color styling that adapts your unit to today's decorating trends and enhances product design. These specialists, who developed the famous SPRED SATIN Dramatone color system for home decorating, have color styled a wide variety of products for leading manufacturers.

Write today for your copy of the informative booklet on Glidden NUPON finishes.

THE GLIDDEN COMPANY

INDUSTRIAL FINISHES DIVISION

11005 Madison Avenue • Cleveland 2, Ohio

SALES OFFICE AND FACTORIES:

San Francisco, Los Angeles, Chicago (Nubian Division—1855 North LeClaire Avenue), Minneapolis, New Orleans, St. Louis, Cleveland, Reading, Atlanta and Toronto

1924–1954

30th Anniversary

THREE X's have a special meaning to INDUSTRIAL FINISHING Magazine for the next 12 months because this is Volume XXX, our 30th year of publication. It has been a pleasant and lively experience for the publishers to have spent these many years serving such an important branch of industry; to have developed and continued a magazine that is recognized as a dependable medium for the exchange of vital trade information, and an effective contact between companies who have something to offer and thousands of concerns who are users of everything that goes into the surface preparation and finishing or painting of manufactured products.

With the increased number and variety of coating materials now available to industry, plus so many more facilities for cleaning surfaces to be finished or painted, for conditioning and applying coating materials, and for speeding up the curing of these coatings, men in industry must have a reliable monthly publication to which they can look for ideas and through which they can keep informed on how to produce durable and attractive finishes on new products. That publication is INDUSTRIAL FINISHING, referred to by many of its readers as "the Bible of the Industry".

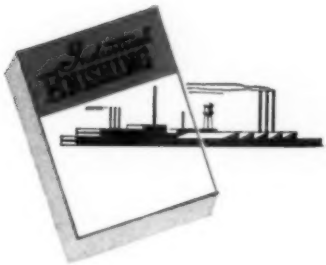
Wherever protective or decorative coatings are applied to manufactured products, there you will find someone in authority receiving INDUSTRIAL FINISHING Magazine regularly. In this publication readers have access not only to timely news, authoritative articles, interesting

illustrations and informative advertising, but they also receive prompt attention and valuable information when they write the publication's editors regarding any problems that come up from time to time.

INDUSTRIAL FINISHING has earned an enviable reputation for the quality of its editorial contents, the enthusiasm and loyalty of its readers, the high volume of its reader correspondence, and the character and number of its advertisers, practically all of whom are continually developing new and better things for serving industry.

On the magazine's extensive and audited mailing list and in our daily correspondence you see names of the "Who's Who" in manufacturing industries all over this country and in most foreign countries. Men in large concerns, and small ones too, look to this publication for information about the latest materials, supplies, equipment, accessories and methods used in all product painting and finishing activities.

Incidentally, the present officers and sole owners—W. H. Rohr, E. A. Dosch and R. E. Suits—are the founders of the publication. These men have no other business interests or connections. Their full time and energy are given toward keeping INDUSTRIAL FINISHING supreme in editorial excellence and advertising value.



A HALF DECADE OF *Finishing Progress*

BY PAUL O. BLACKMORE
Sales Promotion Manager, Interchemical Corp.

FIVE YEARS have passed since *Industrial Finishing Magazine* celebrated it's silver anniversary, and now, in commemoration of its 30th successful year, it seems fitting to review the technical advances that have marked this fast-moving half-decade.

In the field of resin technology, there have been improvements in the physical and chemical properties of some of the old stand-bys. Paler, faster drying alkyds with better color retention, marproofness and general resistance properties are available. Some of them offer better compatibility with the amine resins, providing improved gloss and freedom from haze. Phenolic resins with improved resistance to chemicals, particularly to alkalis, are available. Other phenolic type resins are available for spray applications to wood surfaces. The films are catalyzed to cure at room temperature and yield extremely tough films that are resistant to alcohols, alkalis and most other household chemicals, and are even quite resistant to charring from cigarettes.

Epoxy Type Resins; Their Merits and Possibilities

By far the most important development has been the metoric rise to prominence of the Epoxy type resins. Just making their polite bow five years ago, they have already achieved profound respect among technicians of the industry. They combine the unique resistance properties and film toughness of the phenolics with the pale color and hardness of the amine type resins. White enamels with excellent water, alkali and corrosion resistance can be made from them. These whites have excellent initial appearance and their color retention is good, although not equal to the best alkyd-amine enamels. This statement is true in spite of the fact that Epon resins belong to the phenolic family. Combined with amine resins or esterified with vegetable oil fatty acids, they offer a series of enamel vehicles that turn in a surprising performance. They are finding wide usage in appliance finishes.

Five years ago it was prophesied in these pages that finishes that

would cure without heat would shortly be available. That goal has been realized to some degree.

The catalyzed phenolic wood finish mentioned above is an example. Epon enamels catalyzed to cure with certain amines are also available and have been widely publicized. However, it is generally agreed that these films do not develop the same hardness, toughness, adhesion or chemical resistance when cured by catalysis that they do when cured by heat. But for those metal fabricators who do not have baking ovens and who do not wish to install them, these room temperature catalyzed Epon finishes offer the closest approach to baked film performance yet achieved.

They are expensive, require special high-priced solvent blends, and leave something to be desired from the standpoint of outdoor durability, but one can't have everything all wrapped up in a single package.

Higher Solids Finishes— The Trend Continues

The trend to higher and higher solids continues. Five years ago we said that in raising the solids of any material applied by spray there would be a point of diminishing returns, that point being where the cost of the material was so high that one could not afford to lose any of it in overspray. The advent of new electrostatic spray processes and airless atomization has substantially changed that picture.

Solvents are used only for the purpose of reducing the viscosity of a given material to the point where it will pass through an orifice, atomize freely and flow out to a smooth film after reaching the substrate. Having performed their function they are lost to the atmosphere unless expensive solvent recovery systems are installed. Obviously, higher solids materials, if they can be applied without waste at film thickness that are not excessive, offer attractive potential savings. New resins in both the alkyd and the butylated triazine-formaldehyde family, supplied at 100% solids and reducible to relatively low viscosities with small amounts of solvents bring this goal closer to realization.

Vinyls, Silicone Resins, etc. Offer Special Merits

In the vinyl family, new resins are available that are soluble in aromatic hydrocarbons. Organosol and plastisol techniques have come into fairly wide spread usage. New fluorinated polymers are available which are extremely resistant to acids, alkalis and heat. However they are terrifically expensive, and the application problems are still formidable.

New silicone resins are continually being introduced. Water soluble varieties which convert on drying to water-insoluble films are available for use in waterproofing masonry.

As a good example of synergism (i.e., 2 plus 2 equals 5) silicones and alkyds have been co-polymerized to yield resins with physical properties that are substantially better than those of the starting components. These resins are finding their way into baking enamels to impart extra plusses in exterior

durability. The presence of the silicone improves color retention, resistance to chalking and high water repellency. In the field of heat resistance, the pure silicones are unsurpassed. Modified with alkyds or other film-formers to create the toughness and adhesion that the pure silicones lack, color retention under heat falls off rapidly.

Still very expensive, the silicones have not found general acceptance in the coatings field except in certain small-volume functional uses where their unique physical properties justify their high cost. Continuing research is expected to overcome these technical and economic hurdles.

Big news in the trade-sales field is, of course, the water-thinned latex paints. With their ease of application by either roller or brush, no lap marks, no residual odor and ease of clean-up after the job, they have enjoyed tremendous popularity with the "do-it-yourself" home-owner. Sales of these products have mushroomed over 1000% in the last three years.

Water Thinned Paints Offer Problems and Possibilities

The water paint vehicles are largely styrene-butadiene co-polymer latices. A few of them are vinyl-acrylic.

Water-based paints have brought many headaches to the paint manufacturer and have spurred considerable research directed toward ironing out the production "bugs". Of these, pigmentation is one of the most important. Special pigments have been developed which can be dispersed by simple mixing. Others have been carefully washed free of soluble salts which might render the emulsions unstable or might crystalize out of the film.

Color change in the package, freeze-thaw stability, corrosion of the containers have all been serious production problems.

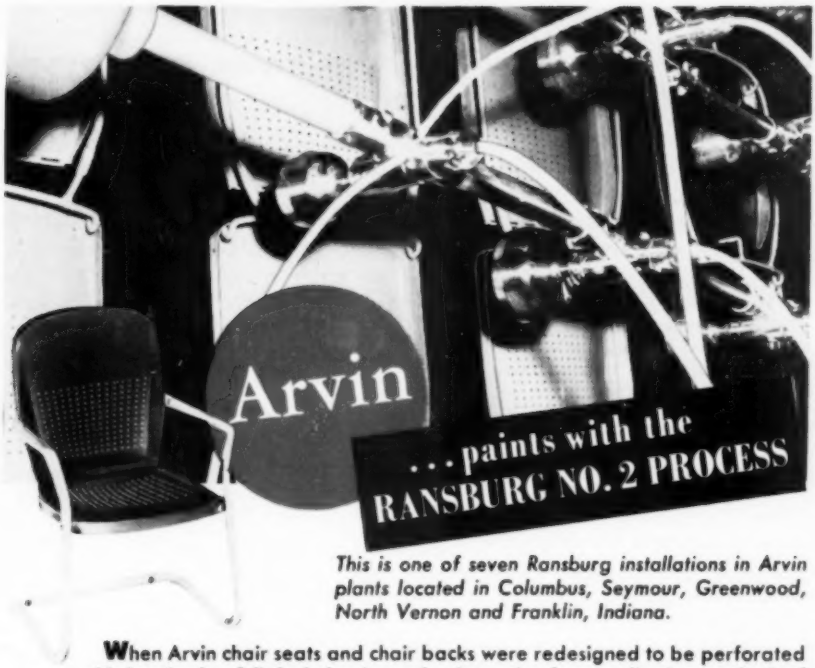
In an effort to regain a portion of the lucrative market lost to latex paints, manufacture of conventional vehicles has produced a series of "odorless" varnishes and alkyds. These are highly refined oil-resin based materials thinned with closely fractionated aliphatic hydrocarbons which are essentially odor-free. Particular attention has been paid to providing easy application by brush or roller, non-penetrating properties, and other physical attributes of importance to both the professional and the "do-it-yourself" painter.

While the present-day latex paint is superior to its early predecessor from the stand-point of washability, it is still considerably inferior to oil- or alkyd-based enamels in this respect, and this fact represents an important plus for the sale of the new odorless alkyds.

As a cross between the two, one vehicle manufacturer has recently offered an alkyd-modified latex which is claimed to possess the desirable characteristics of both.

New Sealer for Modern Wood Finishes

Unique in the wood-finishing field is a new sealer based on polyvinyl butyral which is used in conjunction with a special sandpaper containing zinc stearate. The in-



This is one of seven Ransburg installations in Arvin plants located in Columbus, Seymour, Greenwood, North Vernon and Franklin, Indiana.

When Arvin chair seats and chair backs were redesigned to be perforated with hundreds of little holes in each piece, the former dipping method of coating was unsatisfactory. Here are other reasons why RANSBURG NO. 2 PROCESS was selected to do the finishing job:

1. **Simplicity and rapidity with which colors may be changed without slowing production.**
2. **Less floor space required.**
3. **Provides improved quality with no variance in the required 7/10 mil film thickness.**
4. **Former maintenance and clean-up time reduced to a minimum.**

No savings in paint cost were anticipated. However, the RANSBURG NO. 2 PROCESS—in providing the above, desirable advantages—still enables Arvin to reduce finishing costs 10%. And, that over dip coat!

RANSBURG

Want to know more about production efficiency of the NO. 2 PROCESS as it applies to YOUR production? Write for literature showing a variety of typical production installations in factories all over the country.

Ransburg **ELECTRO-COATING CORP.**

INDIANAPOLIS 7, INDIANA

corporation of zinc stearate in a sanding sealer results in greatly diminished toughness of the film, and injures the between-coat adhesion when the top-coats are applied. Without it, however, sanding would be extremely difficult. Sandpaper would become gummy after the first few strokes. By incorporating the metallic soap in the sandpaper, easy sanding is achieved without sacrifice of the inherent film toughness of the polyvinyl butyral.

Paints Sprayed From Aerosol Containers

Paints and lacquers sprayed from aerosol type bombs are providing a new boom for the do-it-yourself decorator. For normally hard-to-paint objects such as rung-backed chairs, wicker furniture, porch blinds, etc., the aerosol spray technique is a saver of time and temper.

In the field of finish application the last five years have seen several important advances.

Electrostatic Spraying

One manufacturer announced a new electrostatic spray system which eliminates the need for compressed air, ventilating fans, spray booths and most of the elaborate equipment usually associated with production spray painting. The conventional nozzle-type spray gun is replaced with a conical shaped casting mounted on a gear box. Several of these are connected to a common drive shaft. The conical head, containing an electrostatic charge, is insulated from the rest of the mechanism.

The finishing material flows through the small neck of the cone which is rotated at about 900-r.p.m. This velocity is sufficient to provide uniform distribution of the material over the inside surface of the cone and to fling it centrifugally from the periphery. The paint particles pick up the charge from the conical head and are broken up into a fine mist as they leave the periphery of the cone. The mist is drawn electrostatically to the object to be painted which is grounded through the conveyor.

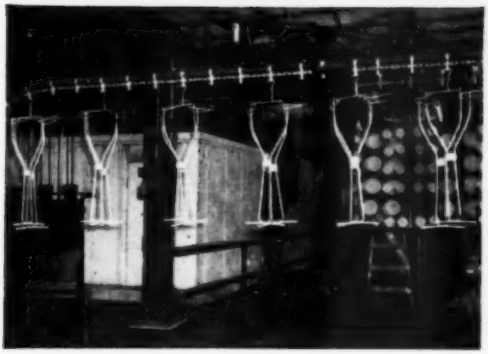
The conical heads may be large or small depending on the size of the object to be painted and the volume of paint required. The amount of paint delivered to each conical head is accurately controlled by its own individual metering pump. The arrangement of the cones and the selection of the proper sizes in order to produce a combination that will provide uniform paint distribution is quite a tricky business and needs careful engineering by experts but, once properly installed, it operates with a minimum of attention. It is claimed that paint losses do not exceed 2%. The metering pumps can be adjusted to deliver any given volume per minute which gives continuous, positive control over the amount of paint applied, resulting in substantial paint economies.

Airless Atomization

The technique of hot-spraying lacquers and enamels has continued to grow. The latest development in hot-spray techniques is known as "Airless Atomization". In the process high fluid pressures are used

Reo, Too, Speeds Paint Drying

with **BURDETT** *"Radiant Heat"* **OVEN**



Above—Exterior of Burdett "Radiant Heat" Oven showing panel board and finished lawn mower parts.

Below — Interior of Burdett Oven showing Burdett "Radiant Heat" Burners and recirculating system.

20,000 lbs. workload per 8 hour day with new, compact, 4-pass Oven

Actually, this represents approximately 1¼ complete lawn mowers per minute, and is merely further confirmation of the unusual results enjoyed by leading manufacturers in all manner of drying, dry-off, and baking processes, as well as burn-off, cooking, soft metal melting, etc. Savings of from 30% to as much as 70% are consistently recorded from all industries. The secret of these revolutionary results is the deep heat penetration, complete combustion of all gases for maximum fuel economy, constant uniformity of product, and flexibility of application as proved on every Burdett "Radiant Heat" Oven installation. These advantages can be yours through either specially designed new equipment or conversion of your present layout. There is no obligation to you for recommendations and we invite you to have our field engineer call to analyze your problems at your convenience — or, send us a general description of your requirements stating type of product, present production output, type of paint or other material used, description of plant and present equipment, and any other pertinent data.

B U R D E T T
MANUFACTURING COMPANY

3425 West Madison St., Chicago 24, Illinois

Also Manufacturers of "Radiant Heat" Systems, Ovens, Heaters, Air Make-Up Units, Spray Booths and Washers.

(300 to 600-p.s.i.) and the temperatures range from 160° to 200° F., considerably higher than for most hot-spray techniques.

The high temperature accomplishes two things. First of all, the viscosity of the material is lowered very substantially. Secondly, by formulating the materials with a portion of relatively low-boiling solvent, a considerable vapor pressure is developed within the system because the material is raised above the boiling point of the low-boiling solvents. No actual boiling takes place because the system is maintained at a high pressure. However, as the material is released to atmospheric pressure through the atomizing nozzle, the instantaneous release of vapor pressure serves to atomize the paint particles. Thus the paint solvent, rather than compressed air, is the atomizing agent.

Although quite new, and still not entirely free of engineering bugs, Airless Atomization promises to offer the following advantages:

1) Handling higher solids materials with less use of thinner.

2) Achieving better build and fullness in one-coat application.

3) Elimination of much material waste due to overspray.

4) Eliminate the need for elaborate spray booths moving large volumes of ventilating air. Result: Less capital investment in equipment; easier cold weather heating of the finishing department.

5) No spray rebound. Easier to direct spray into enclosures. Less health hazard.

6) No manual adjustments to get out of kilter or to be tampered with at the discretion of the operator.

Flow Coating

Flow-coating of primers and undercoats is not new, but has not gained wide acceptance largely because its advantages were not generally known. In recent years, the engineering departments of several of the large appliance manufacturers have studied flow-coating on a scientific basis and pointed out its advantages.

These advantages are as follows:

1) Permits smaller material inventory. Since the coating material is pumped through strategically spaced nozzles onto the object to be painted, it is not necessary to maintain sufficient volume to permit total immersion. Excess material flows back to pump and is recirculated.

2) Changing from one material to another is simpler. Material is simply pumped back into its original container and the lines are flushed out with thinner.

3) Better control of flow and leveling. By maintaining certain solvent concentration in the atmosphere of the enclosed drain-back areas, the flow over sharp edges, holes, etc., and general draining characteristics can be controlled to much better advantage.

4) There are certain light metals, notably aluminum and magnesium that (due to a combination of their light weight and velocity of travel) cannot be immersed in the primer liquid. These pieces can usually be flow-coated quite satisfactorily.

5) There are frequently odd sizes and shapes that do not readily lend themselves to dipping.

(Continued on page 30)

- **LABOR SAVINGS UP TO 50%**
- **FINISHING AREA REDUCED UP TO 30%**
- **BETTER QUALITY CONTROL**
- **LESS PROCESS INVENTORY**
- **PAYS FOR ITSELF FROM INDIRECT LABOR SAVINGS ALONE!**

These and other advantages not gained from your present finishing set-up make the DeBURGH Complete Finishing System almost indispensable for your plant, if you are to stay competitive in the times just ahead.

You owe it to your own business future to look into the DeBURGH Complete Finishing System — engineered, built and installed by KOCH. Backed by 80 years of metalworking experience.

PHONE, WIRE OR WRITE TODAY!

GEORGE KOCH SONS, INC.

EVANSVILLE, INDIANA

Flow-coating, with its better control of material distribution and flow, often solves these problems.

6) Greater production line speeds. Dip-tank conveyors seldom operate in excess of 10 to 12 feet per minute. With flow-coating these speeds may be increased to 20 feet per minute or better.

Flow-coating is just about as economical as dipping insofar as paint consumption is concerned, but it involves greater solvent losses due to high evaporation rates. However, it is more difficult to put a flow-coating system into operation, particularly where the production provides a heterogeneity of sizes and shapes. Careful study of the placing of the nozzles and handling of the pieces is required.

Catalytic Fume Combustion

A new process of interest to users of industrial finishes has recently been announced. This process eliminates the noxious fumes from baking operations by oxidizing them with the aid of catalysts at relatively low combustion temperatures.

Solvents, oils, resins and other film-forming materials as well as the fuels used for oven combustion are essentially combinations of carbon, hydrogen, and oxygen atoms. Their decomposition by catalysis results in end products of carbon dioxide and water vapor with the complete release of the latent heat energy. This is accomplished by installing in the exhaust stream, beds of active catalysts which, at temperatures of about 500° F., carry this oxidation reaction to completion. Actually, the fumes are "burned" at temperatures much lower than exist in a normal flame. The combustion occurs irrespective of vapor concentration, and, consequently there is no lower combustible limit as ordinarily defined.

The heat energy that is released by conversion of the hydrocarbon vapors to CO_2 and H_2O may be utilized as feed back into the oven, serving to carry part of the heat load and reduce the amount of primary fuel necessary to maintain the oven temperature.

The magnitude of this potential heat source is little realized. Industrial heating engineers have commonly viewed oven exhaust gases as being far too dilute to have sufficient value for heat recovery. By most insurance standards, a safe upper limit for hydrocarbon vapors such as toluene or xylol is about one part in 400, but with catalytic combustion even these small concentrations can be converted into useful heat. When it is considered that one gallon of toluene releases 126,500-B.T.U. of thermal energy per gallon and since most enamels at spray viscosity are about 50% volatile matter, it doesn't take much high-powered mathematics to compute that an installation consuming a drum of enamel per hour offers a potential source of 3,150,000-B.T.U.s per hour from the solvent alone, plus additional heat from combustion of the organic acids, glycerine, resins, etc., that bake out of the film, and from the residual hydrocarbons that remain unburned in the primary fuel.

In addition to providing an important source of otherwise wasted

Add beauty and sales appeal to your products with . . .

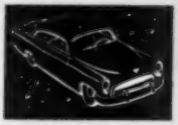
POLYCHROMATIC

Industrial Finishes

using REYNOLDS NON-LEAFING ALUMINUM PIGMENTS

REGULAR

The most iridescent polychromatic finish . . . in great demand for automobiles . . . translucent enamel or lacquer used as the color base.



HAMMERED

Achieves the effect of ball-peening . . . gives a multi-toned texture . . . conceals minor surface defects.

WRINKLED

For glare-free surfaces . . . produced during short baking operation . . . opaque enamel base has good defect-hiding properties

Reynolds technicians will be glad to work with you and your finishes supplier to achieve the right polychromatic finish for your product.

NOTE:

CHROME REPLACEMENT FINISHES

(with leafing aluminum pigment)

Metal parts are sprayed with a synthetic resin primer . . then with a slurry of aluminum paste. Tiny aluminum flakes rise to the surface and are baked into position. Parts are then sprayed with transparent color or clear synthetic lacquer and again baked. This gives a tough, attractive satin finish with good adhesion. It is resistant to salt spray (250 to 400 hours).

* U.S. PATENTS 2,309,327 AND 2,293,731 CAN. PATENT 492,585

For consistency in color and result, for constant high-quality and performance, order Reynolds Aluminum Pigments for your polychromatic industrial finishes . . . Regular, Hammered and Wrinkled.

Reynolds patented* non-leafing aluminum pigment remains evenly dispersed as the coating sets-up. The scattered aluminum flakes produce depth and iridescence to add beauty and sales appeal to your products.

Send for the free brochure, "Industrial Polychromatic Finishes." Reynolds Metals Company, 2533 S. Third St., Louisville 1, Kentucky.

See "Mister Peepers" Sundays on NBC-TV. Consult local listing for time and station.

REYNOLDS ALUMINUM

MODERN DESIGN HAS ALUMINUM FINISHES IN MIND

heat energy, catalytic combustion of oven exhaust fumes offers a convenient method of disposing of undesirable odors instead of spreading them about the surrounding neighborhood. With state and local governments becoming increasingly conscious of air pollution problems, catalytic combustion of oven fumes is of more than just economic significance.

What of the Future?

In this fast-moving scientific era, he is a brave man who attempts to prophesy the future, for who knows what magic the chemists will conjure in their test tubes and flasks.

Certainly there will be continuous minor improvement in the presently available raw materials. Each improvement may not be spectacular in its own right, but one pyramided on another adds up to substantial progress over a five-year period.

Just as certainly there will be new chemical families introduced which will bring us film-forming materials with new physical properties now unknown to the art. One has only to glance through the Chemical Abstracts to obtain a glimpse of the vast amount of research that is going on behind the scenes.

Some of this research will result in a better understanding of the mechanisms by which protective coating films are born and die, a knowledge which will enable the technicians of the industry to improve quality and performance.

It is quite possible that the water-thinned vehicles will be adapted to certain industrial applications, although attempts in that direction to date have not been particularly successful. Some of the reasons for this failure are basic.

In the first place, metals are not easily wetted by water. Most of them contain a rust inhibiting film of oil which is incompletely removed by commercial metal cleaning methods. Thus poor wetting, manifested by crawling and pitting, is an ever present hazard. Much more meticulous metal cleaning and the use of wetting agents constitute a partial answer to this problem, but do not offer a completely foolproof system.

Secondly, films deposited from water are discontinuous, microscopically speaking. Thus they lack the degree of toughness and adhesion that could be expected from the identical combination of film-forming ingredients applied from a solution in organic solvents. They are also more permeable to corrosive influences in their environment, thereby offering less protection to the substrate. In the case of thermoplastic film formers, continuity may be achieved by fusion. With thermosetting materials, it is quite possible that cure to a state of immobility might be reached before fusion.

Latices of styrene, styrene-butadiene, vinyl acetate, vinyl chloride, acrylonitrile and others have been available for some years, but have not found their way into industrial finishes to any great extent because of the above-mentioned difficulties. One manufacturer has recently announced a phenolic resin-alkyd copolymer latex for which he claims important advantages. [*To p. 37*]

ADMIRAL'S
Years Ahead
Styling . . .
Golden
Picture
Frame

made possible by . . .

GOLD-DUOTONE

To enhance the beautiful mahogany or blonde oak cabinets, and add new dimension of picture realism, Admiral chose GOLD-DUOTONE by Nikolas to produce its all new Golden Picture Frame.

This ready-to-use, newly formulated material ends the mess of mixing bronze powders. It will remain stable for six months; no more worry of losing material through spoilage; it is a fast drying finish that will add to the beauty of any product; has mar-resistant hardness; is adaptable to any production schedule.

This beautiful finish is available in any texture of bronze powders, in all colors of brass, copper, gold or aluminum.

NIKOLAS
SINCE 1890

For Complete Information, Samples, or Demonstration . . . Write-Wire-Call

G. J. NIKOLAS & CO., Inc.

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We sell the stars...

You can see them twinkle from the iridescent finish of a score of household appliances. You'll find them shining richly back from the depths of an auto fender, an adding machine, a bathroom hamper . . . a myriad of products.

These are no ordinary stars. Bright flakes of polished Alcoa Aluminum, they add depth and luster to the finish—changing "eye-deep" paints into finishes you look *into*, not *at*.

These are Polychrome Metallic Finishes—the result of the combined determination of Alcoa and leading paint manufacturers to bring a new era in finishing, a new ease in application. Yet with all their advantages, Polychrome coatings cost no more than ordinary finishes which offer nowhere near their sales appeal.

If you have never thoroughly explored the possibilities of metallic finishes for your product, let us tell you about their economy, their ability to hide surface irregularities, their wide range of colors.

Your paint manufacturer can tell you all about Polychrome finishes pigmented with Alcoa Albron pigments. Or write ALUMINUM COMPANY OF AMERICA, 1732-F Alcoa Building, Pittsburgh 19, Penna.

Alcoa Aluminum

ALUMINUM COMPANY OF AMERICA

Another example of Bede leadership

BEDE AIRLESS PAINT SPRAYING SYSTEM

This advertisement announces the first of three major new developments for the paint industry.

The most important development in the history of paint application

Now . . . obtain better coverage with less time, labor, and material, even over surface irregularities and foreign matter

Now . . . reduce paint loss due to overspray, and dispense with elaborate booths

Now . . . eliminate paint rebound into sprayer's face

Here is a revolutionary approach to industrial finishing, so far ahead in its field, so moderately priced, so easy to use, it is destined to swiftly outmode other paint application methods.

A new principle, harnessing *heat* and *hydraulic pressure*, results in *complete* atomization. No compressed air is used. With specially designed, patented equipment, paint is siphoned from container into the system by electrically driven hydraulic pump, sent through a heater, to a new, light-weight spray gun, where volume and angle is controlled by selection of nozzle.

Patent Pending

EASY TO INSTALL

SAVE MONEY! . . INCREASE YOUR PRODUCTIVE OUTPUT!

For informative literature, contact your local Bede distributor, or

BEDE PRODUCTS *Inc.*

Industrial Finishing Equipment

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It would certainly be foolhardy to predict that water-based industrial finishes are not in the cards, and the next five years may come up with a new deck.

It is extremely gratifying to see increased attention being paid to improving the production facilities and application methods for paint products. This attention is long overdue. Production methods and application facilities have lagged behind product development.

New test methods are also receiving increasing attention. Through the joint efforts of the American Society for Testing Materials and the Federation of Paint & Varnish Production Clubs, new specifications for paint raw materials and finished products are being written. Individual manufacturers are developing new tests for certain physical properties of films.

One of these is an instrument to measure the cold-check resistance of wood finishing systems. The measurement is made on thin strips of ductile copper rather than on wood, thus eliminating the variables in the substrate itself. Once the films are prepared, the actual tests take only a minute or two, as compared to days for a conventional cold-check test, and it comes up with a numerical value that positively classifies the system as good, bad or indifferent.

These are interesting times for everyone, and for the protective coatings technician in particular, there is never a dull moment.

Your commentator fervently hopes that he'll be around to give you a progress report on the 35th birthday of *Industrial Finishing Magazine*, and to the Editors we extend our congratulations on this the 30th one.

DeVilbiss Establishes Equipment Service School

The DeVilbiss Co., manufacturer of spray painting equipment, has established an equipment service school primarily for personnel who are engaged in servicing DeVilbiss products.

The school's curriculum includes courses in DeVilbiss spray painting equipment, function and operation of the equipment as well as advanced servicing techniques. Curtis R. Pipes has been appointed supervisor of the training program.

While movies, cutaways, and other training aids will be used in the school, Mr. Pipes said a great majority of the DeVilbiss products will be disassembled and instruction given on repair and maintenance technique.

Present plans are to keep classes small, not exceeding seven persons, so maximum benefit can be gained from the instruction. While the actual spraying of paint with guns will be kept at a minimum, the students will be taught how to use spray patterns for checking gun performance.

Each student will receive a complete service manual and his name will be placed on the company's service literature mailing list.

Class schedules are being arranged and further information about the course may be obtained by writing to the Equipment Service Department, The DeVilbiss Co., 300 Phillips Ave., Toledo 1, Ohio. There is no cost for the class sessions, but the student arranges his own expenses.

Fred Burt, Writer for I.F., Died in Los Angeles

Fred M. Burt, whose illustrated feature articles have appeared from time to time in Industrial Finishing and several other industrial magazines, died in Glendale Sanitarium early Monday morning, October 19. His home was in Los Angeles.

Fred had been in poor health for a long time but had continued his work. He was taken to the sanitarium only the day before he died, at the age of 57. His remains were laid to rest in Forest Lawn Memorial Park at Glendale, Calif.

Survivors include his widow, Eleanor, two married daughters, two grandchildren, his mother and a brother, Edward.

Progress in Organic Finishes

1948-1953

BY B. F. AMES
General Sales Manager
Maas & Waldstein Co.

IN THE MAJORITY of applications, primary emphasis must be placed on the protective aspect of finishes, since their other function—decorative—will not be permanent if either the finish or the metal or other substrate fails in service.

From the standpoint of protection, the job of the finish is to supply the properties that are lacking in the material to which the finish is applied. In the last five years, a number of conditions—some perhaps transient, some certainly permanent—have arisen, which have placed new demands on manufacturers of metal, wood and plastic products. These conditions, in turn, have introduced new problems for the manufacturers of industrial finishes.

Clear finishes on metal products protect the metal from scuffing, scratching or marring, and allow the full beauty of the metal to be seen and appreciated. Photo, Maas & Waldstein Co.

New Finishing Problems

Since 1948, the tasks which organic finishes have been called on to perform have become increasingly varied and difficult. To cite a few instances:

Military requirements during the Korean War resulted in a shortage of such metals as copper, brass, nickel and chromium for civilian use. These metals, commonly used for their corrosion resistance and also for their attractive appearance, had to be replaced by substitute metals that did not provide the same degree of lower corrosion resistance.

By and large, metals and woods were available for civilian use only in the lower grades and they had surface defects that needed to be concealed.

Organic finishes had to be developed to supply corrosion resistance for metals and to mask surface defects of both metals and woods.

More Demands on Industrial Finishes

Continuing trends in industry are also making new demands on industrial finishes. Applications of organic finishes in the aircraft industry are a case in point. Jet planes, to develop their full high speed potentialities, require an aerodynamically smooth skin which can be obtained by a finishing system that covers all metal surface defects. Temperatures encountered on the exterior surfaces of jet planes are extremely high, and even the erosive effect of raindrops and certain cloud formations at jet-plane speeds require careful study of finish performance.

Even in conventional types of planes, the transition from the temperatures encountered in high-altitude flight to the heat and humidity at landing fields in tropical countries imposes new demands on organic finishes. Likewise in industry, coating materials for exposure to wide temperature ranges are in demand.

Radar installations and other electronic equipment used by the Armed Services frequently require protection against fungus growth.

In addition to meeting all these new finishing requirements, industry is looking for coatings that are adaptable to fast finishing schedules and result in low overall costs.

Part Played by Raw Materials

In enabling the Armed Services and industry to meet all these new requirements, the manufacturer of finishes is assisted by the availability of a diversity of raw materials. Some of these materials have been introduced only within the last few years; others have recently become available in commercial quantities; still others, as production is stepped up, have become practicable from the standpoint of economy. Modifications of familiar raw materials have increased their range of adaptability to formulation of finishes.

In industrial finishes, the film-forming resins are of major interest. Among the resins which have either been recently introduced or which have been the subject of recent research leading to new applications, are the silicones, the vinyls and the epoxy types. The familiar

alkyd, phenolic, urea and melamine resins are now available in new modifications, particularly with the styrene polymers. Chlorinated rubber has taken on new importance in a number of applications.

Job of the Formulator

It is the task of the formulator to evaluate all of these film-forming resinous materials in terms both of their end use and of their compatibility with other ingredients of the finish, such as plasticizers, pigments (if needed), and solvents. Selection of the other ingredients of a finish may be important if the full service potentialities of the film-forming materials are to be realized.

A review of some of the basic characteristics of the newer finishes can be summarized for each of the film-forming materials.

SILICONES. The silicone resins, though they should perhaps properly be classed as semi-organic materials, so closely resemble the organics in their chemical structure that finishes incorporating them may be considered as organic coating. They are characterized by the ability to form films with excellent resistance to heat, weathering, humidity and salt spray. Silicone-based enamels are reported to be in successful use at temperatures of 500° F. and even higher. Applications of silicone coatings, include ovens, smokestacks, exhaust manifolds, kitchen ranges, boilers, furnaces, motors and chemical equipment.

Aluminum-pigmented silicone-base finishes are also reported to permit the use of ordinary steels where stainless would usually be required. These coatings will withstand any temperature that the substrate will withstand.

Because of their resistance to high temperatures, silicone-base finishes can be baked at higher temperatures, with a resulting decrease in baking time.

Resins produced by a chemical reaction between silicones and alkyds produce film-forming materials with heat resistance intermediate between the silicones and the alkyds and with better adhesion to metals than the silicones alone.

VINYLS. The Vinyl resins form films that are tough, adhesive and flexible and that offer excellent resistance to many corrosive chemicals. Vinyl films are also largely free from odor, taste and toxicity.

Finishes based on the vinyls are of two basic types: organosols and plastisols.

Organosols incorporate solvents; plastisols consist only of the vinyl resin in liquid plasticizers, with the addition of stabilizers, pigments and modifiers.

The organosols deposit films by evaporation of the solvents in the same manner as cellulose lacquers. The plastisols are intended chiefly for heavy coatings.

Applications of vinyl-based finishes include electroplating equipment, dish drainers, egg baskets and other farm utility items; hardware used in or near corrosive chemical baths; and cosmetic containers, such as compacts and vanity cases.

EPOXY RESINS. The newest entry into the resin field, which came out of the pilot plant stage as recently

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as 1950—offers unusually interesting potentialities for the formulation of industrial finishes.

The epoxy resins form films that are odorless, tasteless and resistant to acids, alkalies, oils and solvents. Films have a high degree of flexibility and withstand deep drawing operations on metals that have been coated with them.

Surface coatings based on epoxy resins use a mixture of solvents, depending on the application. Uses include the coating of builders' hardware and collapsible tubes; lining of food cans and drums; and the coating of magnet wire.

MODIFIED RESINS. Many of the time-established film-forming resins are currently taking on new importance as a result of research into modification of their properties through combinations with other materials.

Among the most promising of these new modified materials are copolymers of styrene with older resins like the alkyds. Styrenated alkyds, in particular, offer an unusual combination of properties. While retaining most of the basic advantages of the alkyds, finishes based on styrenated alkyds display drying characteristics that closely approach those of nitrocellulose lacquers. In addition, styrenated alkyd enamels generally provide a higher rate of build than cellulosic lacquers, and thus permit the use of fewer coats without sacrifice of drying speed.

The use of styrene copolymers with alkyd resins permits the formulation of clear films and pastel-colored enamels with high solids content and rapid drying time.

Phenols modified by the styrene copolymers display good color retention and have resistance to acids and alkalies.

CHLORINATED RUBBER. While not new as a material for organic finishes, chlorinated rubber in the last few years has taken on added importance because of such properties as fast drying, chemical resistance and hardness. Typical applications include washing machines, commercial laundry equipment, bottling machinery, and a variety of uses in the automotive industry.

Specific Developments of The Last Five Years

Within this broad framework of finishing progress since 1948, a number of specific developments are particularly worthy of note.

When many metals used both for their resistance to corrosion and for their attractive appearance came into short supply because of military requirements, new organic finishes came to the rescue.

One group was formulated to simulate the appearance of copper, brass, bronze, or gold. These finishes were quickly adopted by the manufacturers of such products as lipstick shells, compacts, lamps, builders' hardware and similar items in which the public had come to expect the familiar appearance of gold, copper or its alloys. These finishes displayed a high degree of resistance to corrosive attack when applied to zinc or steel, and thus replaced the chemical resistance as well as the appearance of gold or the copper alloys.

Another finish was developed for application directly over zinc or

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Has Built-in Drying Chamber and Electric Strip-heated Oven

- Equipment includes conveyor, water-wash or dry-spray booth, drying compartments, electric strip-heated oven, controls, etc.
- Handles pieces from 1-in. diameter to over 12-in. in diameter.
- Pieces on work holders are automatically sprayed . . . travel through a drying chamber for solvent evaporation, and then into electric strip-heated bake oven.
- Excellent for shell noses, cartridges, weapon parts, clocks, pens, pencils, hardware, etc.
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PAYS FOR ITSELF IN REGULAR PRODUCTION WITHIN 3 TO 6 MONTHS

Let us make a test run of your own work samples—for time study and cost analysis—no obligation.

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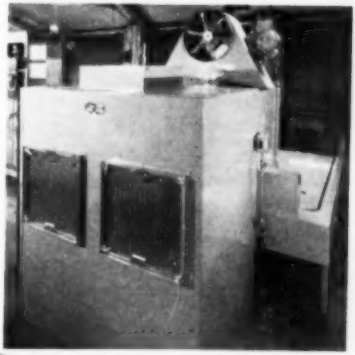


AIR FILTER
Cabinet Spray Booth showing filter units on top and in front.

steel as a substitute for brushed chromium plated appearance. Related to this finish was another designed to give added durability to chromium plate applied directly over steel, without the customary underlying copper-nickel plating. Still another was specifically formulated for the protection of zinc die castings.

Protective and Decorative Finishes for Metal

All of these finishes withstand salt spray and weatherometer tests. While their original development was stimulated by the need to meet metal shortages, the fact that they permit production economies may result in their finding a permanent place in the metal-working field.

Clear finishes for the surface protection of metals, developed within the last few years, display exceptional resistance to chemical attack. An almost water-white lacquer, which can be applied to most metals, withstands salt spray and weatherometer tests for longer periods than ordinary lacquers. It forms a film that is exceptionally resistant to temperature variations, staining and perspiration.

A synthetic baking type finish, almost water-white in color, displays a very high degree of resistance to chemicals, is non-yellowing after prolonged exposure to heat and sunlight, and resists salt spray and perspiration. This finish can also be pigmented if desired.

"Hurdley's wife gave him a neat hammer finish last night."

Fungus Resistant Finishes; Strippable Coatings

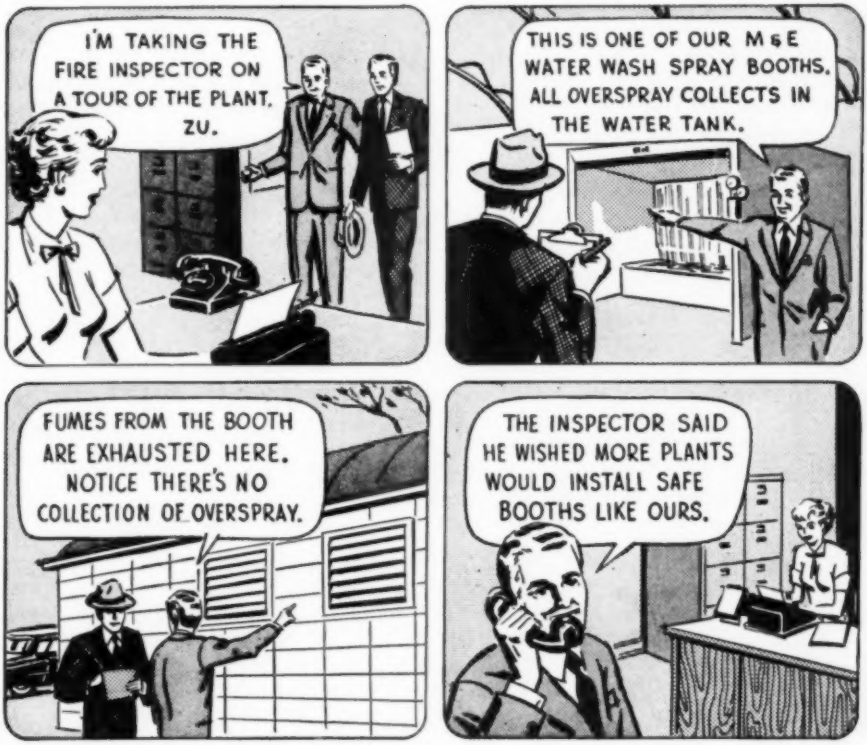
Fungus-resistant coatings, developed primarily for the requirements of the Armed Services for military equipment used in the tropics, are now extending their field of utility. One new potential application is in the coating of wood frames which form the skeleton of refrigerated store fixtures and show cases to prevent fungus growth and consequent odors from mold and mildew.

The whole field of strippable coatings has taken on new interest. These coatings were originally used chiefly for protecting metal parts from corrosion or marring during storage and transit, but new developments have extended their field of utility. One new compound, applied to windows or other glass surfaces by brushing or spraying, masks the glass while the trim is being painted and is easily peeled off when the paint job is finished.

A second type is intended for the protection of surfaces finished with

Chet Smith, President of Smith Cabinet Manufacturing Co., Inc., says—

FOR PROTECTION AGAINST FIRE WE INSTALLED FIVE M&E WATER WASH SPRAY BOOTHS


I'M TAKING THE FIRE INSPECTOR ON A TOUR OF THE PLANT. ZU.
THIS IS ONE OF OUR M & E WATER WASH SPRAY BOOTHS. ALL OVERSPRAY COLLECTS IN THE WATER TANK.
FUMES FROM THE BOOTH ARE EXHAUSTED HERE. NOTICE THERE'S NO COLLECTION OF OVERSPRAY.
THE INSPECTOR SAID HE WISHED MORE PLANTS WOULD INSTALL SAFE BOOTHS LIKE OURS.

FREE GUIDE BOOK

If you want to cut finishing costs, increase production, or reduce booth maintenance and fire hazards, write for this book today. Illustrates and describes water wash and dry type spray booths, and spray finishing equipment.

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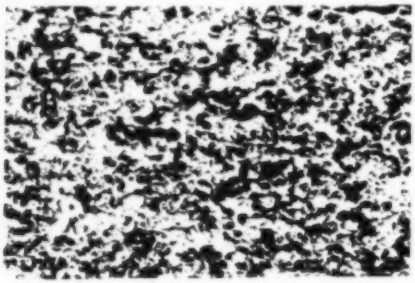
clear lacquers or lacquer enamels. It eliminates the need for corrugated board as a protection for the lacquered surface, and can be peeled off without danger of lifting the lacquer.

A third type forms a "cocoon" for the protection of bathroom fixtures and other products finished in porcelain. Made of a white strippable type of plastic, it protects the porcelain parts from chipping.

Hammered-effect finishes have come into wider use because of their interesting decorative effects and because of their ability to hide scratches, weld marks and small defects in the metal.

Multicolored Textured Finishes Offer Attractive Effects

One of the striking advances in modern organic finishing in recent years has been the development of multicolored, textured coatings. Perhaps the most interesting of these coatings is "Plextone," in which individual globules of different colored pigments are contained in a single vehicle. The finish is applied in a single spraying operation which produces a multicolored effect. The individual pigment particles retain their identity throughout the spraying operation and the drying process.



Textured, multicolored finishes on wood or metal can be produced in a single spray operation with "Plextone" which, in addition to its striking decorative effects, covers surface defects in certain materials.

"Plextone" can be applied directly to expensive woods or to cheaper grades of wood to simulate the effect of mahogany, marble or other fine materials, and will cover knotholes or other surface defects. On metals (usually after the application of a primer) it covers weld marks and other imperfections. "Plextone" is expected to find increasing use because of the opportunities it offers to use low-cost substrates with little or no surface preparation and because of its striking decorative qualities.

A Glance at the Future; More Problems to Solve

Both the manufacturers and users of industrial finishes hope, naturally, that the day may arrive when one single finish will meet all service requirements on all types of substrates. That day, however, is not in the immediately foreseeable future. But in the meantime, formulators of finishes will continue to study closely both the needs of the finishing industry and the new raw materials which can be utilized to meet them more effectively. From this research will come new finishes that may be expected to offer combinations, to a greater degree than heretofore, of toughness, flexibility, chemical resistance, resistance to high and low temperatures, ease of application and low over-all finishing costs.

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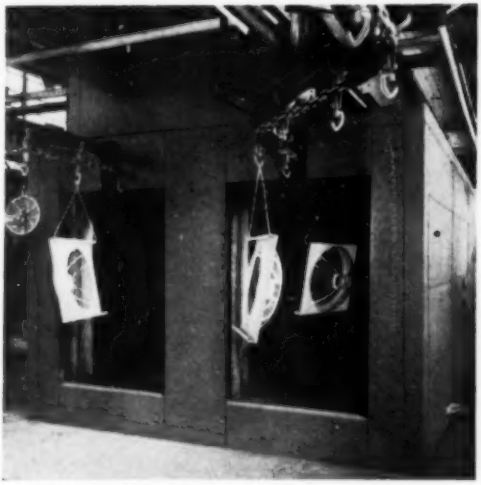
FOR BAKING and DRYING

Engineered to meet your *Requirements* and *Save you money!*



Continuous monorail conveyor enamel baking oven equipped with mechanical air seals.

Young Brothers Ovens are designed and built to meet the most exacting requirements of every baking and drying process.

Leading manufacturers are finding that Young Brothers improve the quality of their products and help them increase production. You, too, can benefit through savings in time, labor and lower costs by installing Young Brothers Ovens. For over 50 years we have been continually developing Batch and Conveyor Ovens for new processes, materials and products. Write for Bulletin 4 today.

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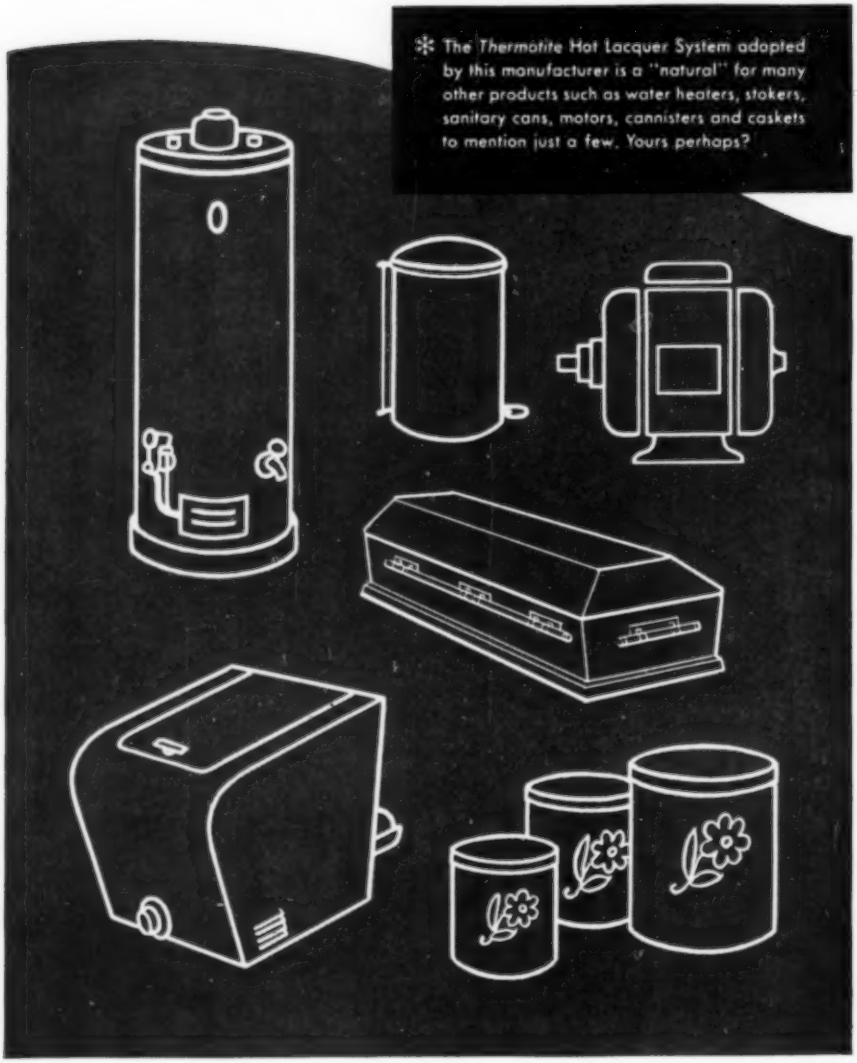
Lowe Brothers *THERMOTITE*

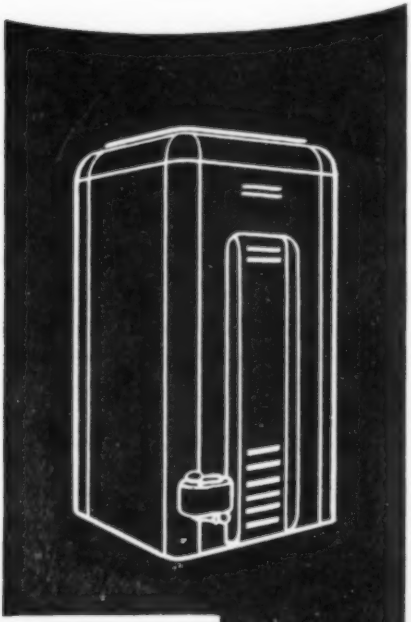
Eliminates 2 handling operations


* The *Thermotite* Hot Lacquer System adopted by this manufacturer is a "natural" for many other products such as water heaters, stokers, sanitary cans, motors, canisters and caskets to mention just a few. Yours perhaps?

solves production bottleneck

by cutting drying time 600%

This manufacturer of gas and oil furnaces* was using a finishing system which produced highly satisfactory results from every standpoint of gloss, adhesion, appearance and durability. It was necessary, however, to move finished parts from the line to a storage place for an hour's drying time before handling and packing—a costly production bottleneck. A Lowe Brothers "Finishing Specialist" recommended *Thermotite* as a means to eliminate this bottleneck yet retain all of the desirable characteristics of the finish used previously.



NOW, with *Thermotite*, parts are dry, ready for packing within 9 minutes! Packing is done just as pieces leave the production line. No extra handling, no moving, no special storage, no costly bottleneck—just big savings!

BUT MOST IMPORTANT, the "hot application" method recommended by Lowe Brothers "Finishing Specialist" produces a finish with every desirable characteristic of the former system—good build, excellent adhesion, one coat application and a tough, durable high gloss film, free of marring!

MANY manufacturers have found it most profitable to have a Lowe Brothers "Finishing Specialist" check their finishing operations for possible improvement based upon thorough knowledge of the latest in modern systems and materials. How about you? No obligation—write today!

THE LOWE BROTHERS COMPANY • Dayton 2, Ohio
Industrial Division

This advertisement is based on facts from Lowe Brothers industrial case history files.

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FINISHES FOR INDUSTRY
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Electric Dry-Off Oven

AN ELECTRIC drying tunnel has speeded up drying of metal parts for Unistrut Corporation, at Wayne, Mich. Twelve Chromalox electric radiant heaters, each rated at 1.8 kilowatts, focus far-infrared heat on parts as they leave the washing and bonderizing tunnels.

With a conveyor speed of 6-ft. per minute, 3000-lbs. of brackets, angles, channels, clamps and similar parts are dried per hour. Insulation and reflective aluminum sheeting are used to retain heat in the oven as much as possible.

An interesting angle of this installation is that many of the Unistrut components which are dried in this oven are sold nationwide for the fabrication of similar ovens. The escalator type oven used here is also unusual but well suited for the job being done. It demonstrates the adaptability of the all-metal radiant heaters which are mounted at an oblique angle that assures even absorption of heat by the work.

Accurate heat regulation for varying part sizes is provided by variable input controllers and magnetic contactors. Controller settings can also be varied to compensate for changes in rinse temperature, ambient building temperature and humidity.

Other merits of the installation are compactness of the oven which saves valuable floor space, all-metal construction and long life of heating elements which minimize maintenance problems, and low initial and operating costs. At full input controller

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Ordinary Solvent cleaning, (magnified 5 times) completely failed at 72 hours under salt spray fog. A.S.T.M. Spec. B-117-T-44.

Prep-n-Cote panel, (magnified 5 times) after 704 hours exposure to salt spray fog. A.S.T.M. Spec. B-117-T-44.

Prep-n-Cote can be used in Mild Steel Industrial Spray Washer Equipment

- From 2 to 6 Stages
- In Steam Gun Operation
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- Also Acts as an Excellent Metal Cleaner
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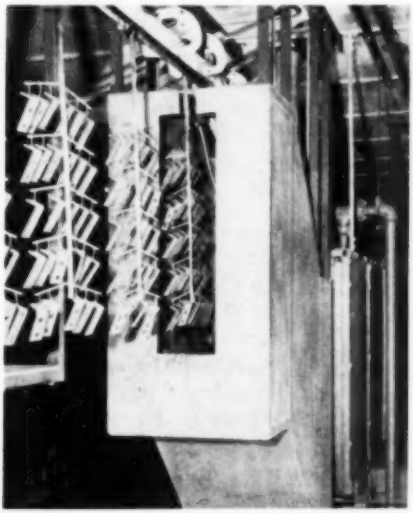


Racks of parts moving through dry-off oven.

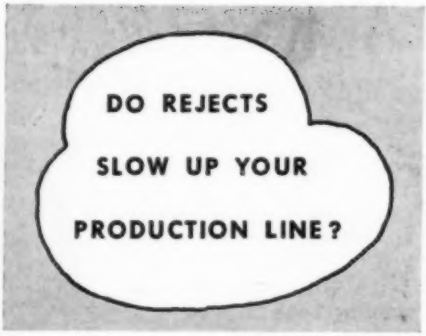
setting the total load is only 21.6 kilowatts. The far-infrared energy produced by the radiant heaters is absorbed equally well by all colors, making heat adjustment easy and accurate.—*E. L. Wiegand Co.*

S. Yacus Elected Sec-Treas of Metal Finish, Inc.

Election of Mr. Steve Yacus to the position of Secretary-Treasurer of Metal Finish, Inc., 410 Frelinghuysen Ave., Newark 5, N. J., is announced by Mr. Paul E. Kirchartz, president of the firm.

Metal Finishes, Inc., distributor for Minnesota Mining & Mfg. Co.'s "Honite" barrel finishing abrasive chips, compounds and equipment — operates a completely equipped production shop.

"Well qualified by experience and training as a barrel finishing engineer, Mr. Yacus will contribute materially to the services offered by Metal Finish, Inc., to users of barrel finishing, in sample and job or custom work," Kirchartz stated.



Oakite paint strippers may help you break the bottleneck

When painting rejects slow production, you may need one of the stripping methods described in "How to STRIP PAINT", a free booklet which answers many questions about effective stripping procedures. For example:

¶ What's the cheapest way to strip metal parts in large volume? *See page 9.*

¶ What strippers are best for removing oil-base paints?... Synthetic enamels, alkali-resistant plastics or resin-base paints? ... Japans, wrinkle finishes, nitrocellulose lacquers and ureas? *See page 12.*

FREE For a copy of "How to STRIP PAINT" write to Oakite Products, Inc., 32F Rector St., New York 6, N. Y.

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A Letter From the Field

BY P. C. BARDIN
Associate Editor

SINCE WE PASSED our quarter century anniversary in November 1948, I have visited many plants in the Eastern half of the United States in search of editorial material.

One thing that has impressed me is the growing realization on the part of management that there is nothing about any method of paint or lacquer application that cannot be perfected to the point of success by perseverance, study and practice. With this comes experience and success. More and more, finishing of the product is gaining in importance, and becoming less and less the step child of the modern factory organization. Management is becoming predominently finish conscious. Plant executives are asking questions, seeking advice as to better materials, methods and equipment. This is a good sign.

Finishing materials have been greatly improved during the past five years due to the development of new synthetic resins and better formulations. The use of silicones has increased.

Dip coating has made big strides forward. Part of this may be attributed to the wider use of mechanically controlled dipping speeds. Other improvements include a solvent vapor concentration chamber at the exit end of the dip tank to promote fast and complete drainage of surplus material off the surfaces of the dipped parts. This innovation also increases the volume of salvageable material, which helps to reduce costs.

The flow coating method of paint application has undergone several improvements. Low pressure and high pressure systems of flow coating have been definitely separated and established. A whirling flow coater has been developed which really produces an "atmosphere" or "fog" of paint inside the applicator chamber to coat the product as it passes through by conveyor. Also, in flow coating, the use of the solvent vapor concentration chamber has promoted fast and complete drainage and improved the control of film thickness of the coating.

Paint Temperature Control Is Now More in Use

Within the past half decade greater realization has come for the need of absolute control of paint temperature in order to control its viscosity and promote uniformity of the finish and dry film thickness. This requirement applies to some dipping operations, and it is especially

adaptable to flow coat applications. In some of the latter installations, heat exchangers are used in the line between the storage tank and the manifold or risers which contain the flow nozzles. During the winter months, steam can be used in the exchangers to heat the paint. In hot weather, cold water is used to cool the paint. Both steam and cold water are thermostatically controlled. . . . the pre-established temperature can be maintained throughout the entire year.

Hot Spray; Electrostatic; Airless Spray

Vast improvements have been made in paint heaters. Spraying of hot enamels and lacquers has come into much wider use. More manufacturers are examining the possibilities of spraying hot materials for better viscosity control and faster application of more solids.

In this period, airless spraying of paint has come into its own. The No. 2 electrostatic method of paint application has been developed and placed in service in many plants. Also, the airless method of applying hot materials, which makes use of the combination of paint heat and pressure and a special spray nozzle to atomize the material, has been made available.

Baking Ovens; Cleanliness; Better Ventilation

The last five years have seen the development of infra-red electric and convection baking of finishes in one and the same oven. These ovens use radiant as well as convective heat, with recirculated air to cure synthetic enamel finishes.

A few highlights of what our associate editor has noticed in recent years while he visited various types of factories in which certain surfaces of new products receive protective or decorative coatings.

Finishing rooms in both large and small plants are cleaner and neater in appearance. Wider use is being made of pressurized finishing rooms or air-conditioned spray rooms to protect wet finishes against dust and flying particles. A desire for cleanliness has invaded the product handling system. Conveyor chains and work racks are being cleaned of accumulated paint in stripper tanks on each cycle.

During this five-year period, finishing in general has improved. There is more enthusiasm, a greater search for knowledge, and a willingness to try out improved methods, materials and equipment. Therein lies the secret of advancement and accomplishment.

New Building for Thierica Studio and Stepanski Associates

Thierica Studio, manufacturer of masks and fixtures, and Stepanski Associates, manufacturers of automatic spray mask painting equipment and automatic mask washing equipment, have moved into a new building at 900 Clancy, Grand Rapids 6, Mich. The move provides increased facilities to handle a rapidly growing demand for spray painting masks and automatic spray mask painting machines.

ANYTHING THAT CAN BE BAKED CAN BE BAKED BETTER IN A FOSTORIA OVEN

ANY SHAPE
ANY MATERIAL
ANY COLOR

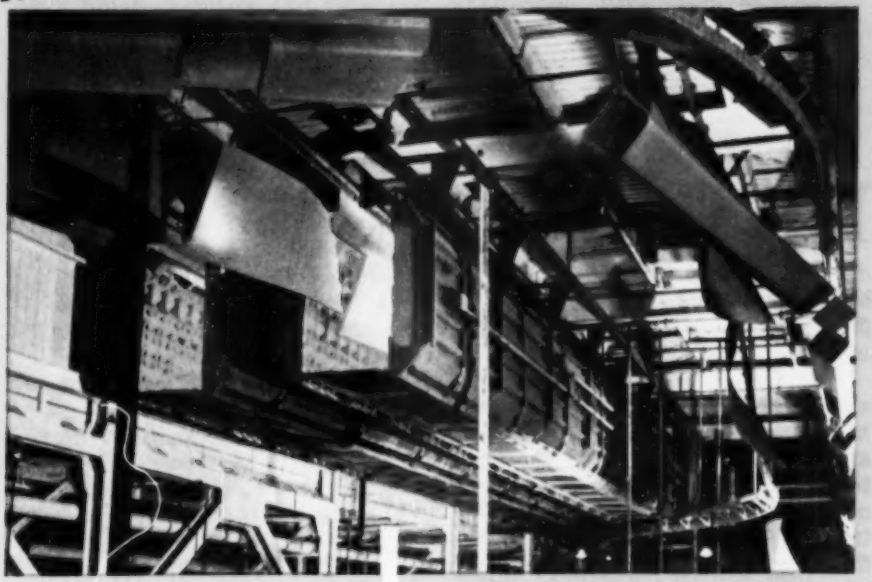
Big dividends can be yours by modernizing with Fostoria — America's Finest Engineered Ovens. Case history experience of over 7,000 installations proves (1) no other oven approaches Fostoria results in the high percentage of energy *usefully* utilized; (2) no other oven compares with Fostoria in production per square foot of floor space; (3) no other oven can match the quality of output or the low "per-piece-cost" of the high efficiency Fostoria Oven. For any product — any shape — any material — any color — a better baking job can be done faster and in less space with the production-proved, modern Fostoria oven. Write now for complete facts.

WRITE FOR CATALOG

WRITE for this brochure of technical facts on Infra-red and case histories of many Fostoria oven installations. Tell us about your particular problem and we will include data directly applicable to your operations.

Throughout industry, new high standards of efficiency are being set by utilization of modern Fostoria oven equipment. A Fostoria representative will gladly analyze your production needs and submit recommendations for your consideration.

MOST EFFICIENT OF ALL INDUSTRIAL OVENS



A TYPICAL EXAMPLE OF ADVANTAGES PROVED IN OVER 7,000 PLANTS

White Motor Co., Cleveland, Ohio, uses Fostoria Ovens practically 100%. Photo shows two 75-ft. ceiling suspended ovens for finish baking approximately 8,000 parts of various shapes, sizes and colors. Baking time is 5 minutes compared to 20 minutes with other systems. Quality is better controlled. Production economies permit amortization of entire oven investment in less than 2 years.

INFRA-RED fostoria OVENS

Send for Complete Facts

THE FOSTORIA PRESSED STEEL CORP.
FOSTORIA, OHIO, Dept. B

Please send information on Infra-red ovens for

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TEN YEARS OF PROGRESS IN
Industrial Finishes

BY WAYNE R. FULLER
Director of Research
Grand Rapids Varnish Corporation

DURING THE past several years industrial finishes have made progress in many directions. . . . The forward steps have been so numerous and diversified that the resulting advancement is truly impressive.

In finishes for wood furniture and other wood products, progress has followed the line of refinement and improvement of all of the materials used rather than radical innovations. Most large volume furniture plants have speeded up their finishing schedules by installation of conveyors and by forced drying of at least some of the coatings. It has been necessary to modify some of the coating materials to conform to these faster schedules. At the same time, there has been a general up-grading of furniture finishes in both eye-appeal and serviceability.

Better Furniture Finishes; No Cold Checking

The main improvement in durability relates to checking or cracking of the finish on aging, commonly known as cold checking. Furniture manufacturers have become highly conscious of this point. Finish manufacturers have developed coatings that are highly resistant to checking. Naturally, the most check-resistant finishes are produced by tough coatings. Being tough they are not easy sanding and do not rub or polish so easily. It is these production disadvantages, more than price, that have caused some furniture makers to select coatings that represent a compromise in durability.

The vogue for modern furniture in light colors has accentuated the problem of finishes yellowing or darkening on aging. From the angle of lacquer the problem has been solved, as present-day water white lacquers cause practically no color change. *Most of the color change results from darkening of the wood itself and for this there is no general solution.* It has been found that the darkening of some woods can be reduced by incorporating a chemical that absorbs ultra-violet light in the lacquer coats; but few, if any, furniture manufacturers have considered the gain sufficient to justify the added cost.

Catalyzed Synthetic Varnish Has Been Improved

While catalyzed synthetic varnish is more than ten years old, it is mainly during the past five years that it gained acceptance by a mod-

erate number of furniture makers. Catalyzed varnishes have been improved and are susceptible to further improvement. Only gradually have finish chemists and finishers learned how to use them to best advantage. Varnish of this type has several attractive properties, namely, the build of oleoresinous varnish, the speed of lacquer, extreme resistance to printing and marring, good to excellent resistance to cold checking, excellent resistance to water, alcohol and finger nail polish. The color is good but not quite equal to the color of the best water white lacquers.

Opposing this array of plus qualities are serious production handicaps. To fully realize the excellent toughness and adhesion inherent in the varnish it must be applied directly to wood or over a special type of lacquer sealer which has poor build and sands poorly. The entire finishing system must be reconsidered and perhaps revamped in order to adapt it to catalyzed synthetic. There is also much less flexibility in the coloring operations, a serious disadvantage for furniture that is highly color styled. The finish is more difficult to rub or polish.

Formula modifications that make the sealer sand better or the top coat rub more easily have resulted in some sacrifice in durability. The finish is difficult to patch, repair or strip. As a result of these limitations, catalyzed synthetic seems most suitable for simple finishing systems and for any furniture that requires its outstanding protective properties, notably all hospital and institutional furniture.

Catalyzed synthetic varnish owes its outstanding qualities to the fact that it is a first cousin to the white baking enamels used on household appliances. Like them it consists of an alkyd resin for toughness and a ureaformaldehyde resin for hardness. On metal the enamel is baked at 300° F. or higher to harden the urea-formaldehyde resin. Finishes on wood can not be baked higher than 140°. This difference in temperature is compensated by increasing the time and, more important, adding an acid catalyst, a material that causes the resin to cure or harden at a lower temperature. In the early stage of catalyzed varnishes they were always baked and were called baking varnishes. Later more powerful catalysts were found, permitting these varnishes to be either air dried or baked, although somewhat better properties are obtained by baking.

Metal Coatings; Whites and Colors are Improved

Many improvements have been made in the field of metal coatings, some quite significant. The more important advances have been the result of utilizing new types of resinous binders or vehicles. New pigments also have made a real contribution, as have a great variety of other raw materials. A single new binder or pigment may lead to better coatings for a great number of purposes. It seems best, therefore, to develop the discussion of metal finishes primarily around the underlying changes in binders, pigments and other raw materials.

Since most metal finishes are opaque, the pigments that impart

the hiding play a vital role in metal coatings. White pigments stand first in importance because they are most widely employed. With the introduction of rutile titanium dioxide pigments in the early 1940's white pigments for industrial coatings ceased to be a major cause for concern. There remained, however, serious shortcomings in coatings because of deficiencies in color pigments. Substantial progress has been made in overcoming these deficiencies with new color pigments.

The iron blues (Chinese, milori, Prussian) and ultramarine blue left great need for improvement in color fastness on weathering, resistance to chemicals and color permanence of blue tints in the package. In the main this need has been satisfied by the copper phthalocyanine blues. Similar weaknesses in chrome green pigments have been overcome in copper phthalocyanine greens. Molybdated chrome oranges, which are deep orange in color, have been greatly improved in color permanence to light and weathering. For many interior and exterior finishes these improved moly oranges are being blended with suitable non-bleeding maroon and deep red pigments to produce bright reds.

No More Poor Hiding Power; No Color Change or Bleeding

Formerly the rich maroon pigments, as a class, had shortcomings in hiding, weathering qualities, color change on baking and bleeding. Substantial improvements have been effected. The vivid red tops on some two-tone automobiles are colored with a mixture of one of these new maroons and cadmium red. Synthetic red oxide pigments have been developed in much richer shades of red and maroon, thus extending the utility of these dense hiding, permanent, low cost pigments.

A relatively new hydrated iron oxide pigment of a brown color, imparts exceptional brilliance and permanence to metallized tans and browns. It has been used mainly in automobile finishes but is equally suitable for other industrial lacquers and enamels. Even this incomplete listing of improved pigments makes plain that many of the coating deficiencies chargeable to pigments have been eliminated.

New Types of Resinous Binders or Vehicles

The most radical and interesting improvements in metal finishes have resulted from the adoption or more extensive use of new types of resinous binders or vehicles.

The vinyl resins, while by no means new, have had their range of utility greatly broadened by the addition of new products. Since these resins are thermoplastic, they dry by solvent evaporation. However, they are generally baked to promote flowing and adhesion to metal. The original series of vinyl resins for coatings were vinyl acetate-vinyl chloride copolymers and they were employed in the form of solutions in lacquer type solvents. Their excellent toughness, weather resistance and chemical resistance were not widely capitalized in finishes because of rather poor spraying and flowing properties, poor build, poor adhesion to metal

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and poor compatibility with other resins.

The adhesion was improved in a modified copolymer resin. Grades were developed that are compatible with nitrocellulose and alkyd resins. The problem of poor build, which is the same as high viscosity of solutions, was met by making a fine suspension of solid resin particles in a volatile organic liquid that is not an active solvent for the resin. These suspensions have high solids and are known as organosols. After application the resin particles and plasticizers are fused to a continuous film by baking at 350° F. or slightly less. By changing the suspension liquid to plasticizer only the solids content was increased to 100%. These so-called plastisols are often applied by dipping or by doctor blade application to produce very thick films, which are not very hard. The plastisol form of coating permits the use of straight vinyl chloride resin as well as the copolymer resin.

New Enamels Resistant to Severe Service Demands

Enamels made with copolymer vinyl resins are the favored finish for metal laboratory furniture. They are used to some extent on washing machines, office furniture and many other products. Because of somewhat high cost, their use on exterior metal surfaces has been largely where the atmosphere is strongly corrosive or service demands severe. A vinyl-alkyd resin paint is being specified for the exterior of U. S. Navy ships.

Most of the drain racks for dishes are finished with a dip coat of vinyl plastisol. This is also a standard coating for hangers and racks used in electroplating. Metal coatings account for only a minor part of the total vinyl resins used in coatings. The major portion go into coatings for cloth and paper. In these applications organisols and plastisols are applied by the doctor blade in a continuous process.

Polyvinyl butyral resin is so different from the other vinyls that it requires separate treatment. Unlike the copolymer resins, it is soluble in alcohols and exhibits excellent adhesion to both metals and wood. It is useful as a minor constituent in certain phenolic and epoxy base coatings. Its major use, however, is for the binder in zinc chromate wash primer. This wash primer is not a primer in the usual sense but a surface preparation that serves the same general purpose as a phosphate coating. So far there has been small use of wash primer aside from ship and airplane specifications. However, there is a place for it in industrial finishing when phosphatizing is impracticable or indicated for only a small portion of the production.

Fast Drying; Durability; Good Color Retention

The air drying of alkyd resins has been greatly accelerated by incorporating styrene in the resin, producing so-called styrenated alkyds. Enamels made with these modified alkyds combine fast drying, about five hours, with good durability and good color retention, but have the weakness of poor resistance to gasoline and other solvents.

(Continued on page 62)

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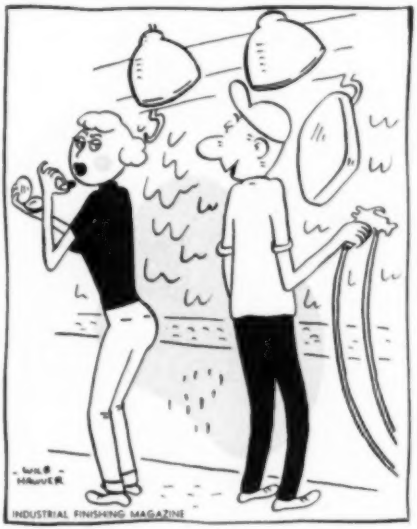
These alkyds have been combined with amino resins (urea- or melamine-formaldehyde) to make baking enamels that bake quickly or at a low temperature. A recent development along the same line is a different alkyd modification that produces lacquer speed of drying and satisfactory solvent resistance. Coatings made with this resin have just come on the market and should quickly solve various finishing problems.

The principle underlying catalyzed furniture varnish has been applied successfully to air drying or low baking enamels for both metal and wood. The vehicle of these enamels is a blend of air drying alkyd resin and urea-formaldehyde resin. By incorporating a catalyst in the reducer the urea-formaldehyde resin is caused to cure and the enamel becomes hard in about four hours. Enamels of this type have shown great utility for interior finishes. Limitations are that the enamel must be used the day it is reduced, dipping and flowcoating are impracticable and exterior durability is only fair.

Methacrylate Resins; Silicones; Heat Resistance

Methacrylate resins offer unique properties that have dictated their adoption for certain purposes. They are water white in color, non-yellowing under both heat and light, tough and have good exterior durability. Being thermoplastic in type, they dry by simple solvent evaporation. However, adhesion to metals and flowing are improved by baking, which is the rule. Because of poor build and somewhat high cost they have been used on a smaller scale than some other resins. Typical products in which they are used are heat resistant white baking enamel and clear protective coatings for metals, including the chrome plate trim on automobiles. They have proved especially suitable as the vehicle of luminescent and fluorescent coatings.

Wide publicity has been given to metal coatings based on silicone resins. These resins stand alone in two properties: 1) extreme resistance to high temperatures; 2) extremely high price. The price factor has restricted the use of straight silicone and high silicone resins to applications demanding a degree of heat resistance that can be obtained with no other coating. The key properties of the straight silicones are: 1) resistance to temperatures in excess of 1000°



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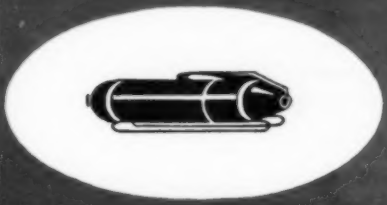

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F. without discoloration or deterioration; 2) good weathering properties; 3) excellent resistance to chemicals; 4) require one hour at 400° F. for curing; 5) poor adhesion to metal; 6) poor resistance to solvents. The utility of silicone resins has been greatly extended by modifying them with alkyds and other materials. In this way the shortcomings have been bolstered or eliminated while maintaining a significant advantage in heat resistance together with good weathering and chemical resistance. Indicative of the wide range in properties obtainable, is the fact that some of the modifications air dry. Combinations of silicone resins with epoxy resins are stated to produce high bake coatings that reflect the best features of both resins.

Epoxy Resins Used in Some Bake Finishes

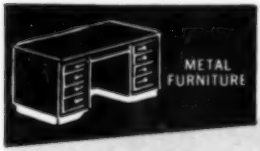
At present most important among the resins developed recently are the epoxy (Epon) resins; widely used in baking primers and to some extent in baking enamels and clears. The outstanding properties of these resins are excellent resistance to water, alkalies and detergents, excellent adhesion and excellent toughness. They must be catalyzed or used with other resinous materials which react with them. The first primers contained urea-formaldehyde resin in combination with the epoxy resin, required expensive ketone solvents, and the minimum temperature for curing was approximately 375° F.

Later it was discovered that the same protective properties could be obtained by incorporating the epoxy resin in the form of a fatty acid ester: a varnish made by cooking the epoxy resin with the fatty acids of an oil such as linseed. This gave two economies: 1) the proportion of expensive epoxy resin was reduced; 2) straight aromatic hydrocarbon solvents such as xylol and hi-flash solvent naphtha could be employed. Another advantage was that the baking heat could be dropped as low as 300° F. Today these epoxy type primers are used on much of the home laundry equipment, on incubators, steel wall tiles and many other products. They are especially well adapted to flowcoating and dipping because they have no tendency to thicken or gel on long exposure to air.

The epoxy resins, like all other types, have some restrictive properties. Their color prohibits their use in large proportion in light colored top coats. They are not outstanding in weathering properties. They are poorly suited to anti-corrosive exterior primers. Such primers are based on the passivating effect of rust-inhibitive pigments, which require moisture to activate them. Baked epoxy binders are so impervious and inert that they prevent moisture from reaching the pigment.

Baked Coatings Durable; Hammered Metal Finishes

When baked at a high temperature epoxy resin and certain phenolic type resins react to form coatings that possess exceptional resistance to a wide range of acids, alkalies and other chemicals. These



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coatings have proved useful for the lining of steel drums and tank cars in which chemicals are shipped. They have other properties that seem to confine them to a rather narrow field: 1) require baking at 400° F. or higher, 2) bake out dark in color, 3) offer poor adhesion for top coats, 4) may discolor light colored top coats.

Ever since their introduction, hammered metal finishes have enjoyed a measure of popularity. The original hammer finish was obtained by spatter spraying solvent on the enamel coating while it was still wet. In addition to the time and expense of this operation, it was difficult to obtain a uniform pattern. A few years ago hammer finishes received new impetus by the perfection of one-spray enamels which develop the hammer effect without being spattered. These one-spray enamels afford better control of pattern and are made in baking and air drying types.

In the past, various methods have been employed for producing multicolored, non-metallic coatings. The most satisfactory results have been obtained by first applying a ground color coat, allowing it to partially dry and then spatter-spraying a coating of a different color. Another method simultaneously sprays two different colors from a double-headed gun. These methods involve disadvantages that seem to be eliminated by a new coating formulation. This formulation disperses lacquer or synthetic bases of two or more colors in an aqueous medium in the form of large particles or globules. When the coating is sprayed on, the separate globules coalesce to form a real continuous, multicolored film. This general principle can be applied to either air-drying or baking coatings and permits considerable latitude in film properties.

Coatings for Molded Plastics Are Now in Demand

The problem of coating molded plastics has come to the front as plastics have increased in volume and variety. In many cases coatings are employed for protection as well as decoration. Among the plastics that are being finished successfully with organic coatings are phenolic, polystyrene, cellulose acetate, cellulose acetate butyrate and methacrylate.

From a finishing standpoint these plastics fall into two groups: 1) the thermosetting, represented by phenolic, and 2) the thermoplastic, which comprises the other types. Since thermosetting resins are hard, rigid and unaffected by solvents, they can be finished much the same as metal, with the exception that adhesion requires special attention. Baking coatings are feasible and are usually employed. On the other hand the thermoplastic materials raise problems of solvent attack, plasticizer migration and flexibility. Coatings must be air dried or force dried at moderate temperatures.

Broadly speaking, lacquer type or thermoplastic coatings have proved most suitable. The finish must be adapted not only to the type of plastic, but to the specific formula within that type, the product to be finished and the service

(Continued on page 70)

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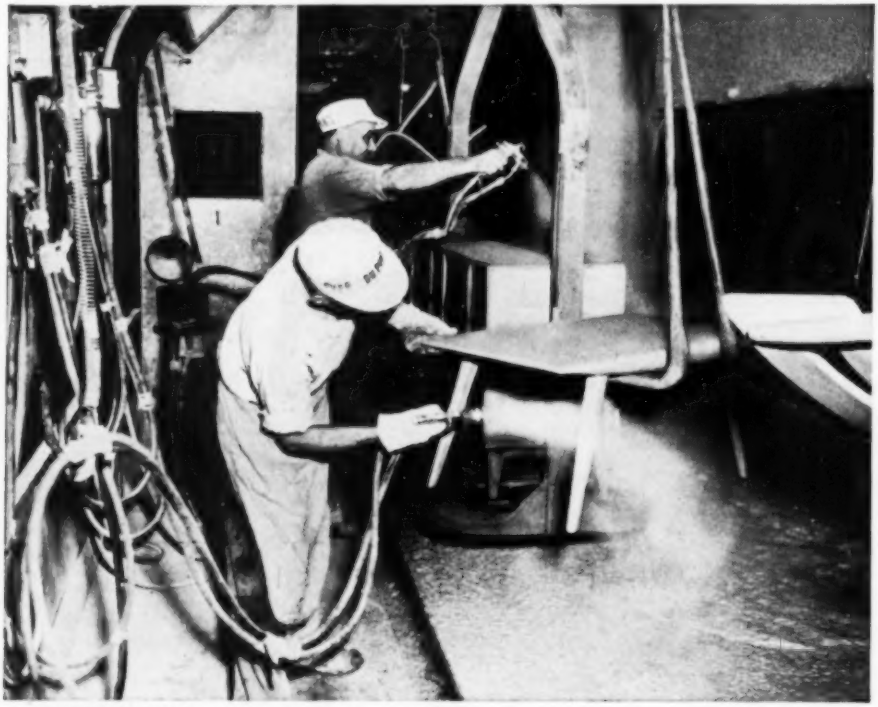

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to which the product will be subjected. With so many variables it is not surprising that many types of resinous binders are used to advantage. Each job must be considered as a separate case and perhaps a coating designed to fit it.

During the past two years there has been rapid growth of vacuum metallization of plastic articles. This calls for an organic coating before metallizing, to provide a smooth non-porous surface, and another coating over the metal deposit to protect it from any mechanical damage.

New Additions Make More Materials Controllable

During the past several years paint chemists have been greatly aided in their work by many new additives: materials that are used in very small amount to correct deficiencies. Many formulas now contain one or a few of these additives. If aluminum paint does not leaf as desired, a leafing agent is added. If an enamel, varnish or lacquer should flow better, a flowing agent is added. If a dipping enamel shows color streaking or silking, an anti-floating agent is added. There are other additives to reduce the time required for mixing and grinding, increase consistency, retard settling, prevent skinning, prevent wrinkling, prevent bodying in dip tanks, and prevent loss of drying.

The heat and light stabilizers required for most vinyl resins also fall in the class of additives. The use of driers is so old and normal that they are not considered additives. Nevertheless, it is in order to mention that during the past few years new and valuable driers of three types have been put to work. To these additives must be attributed a considerable share of the greater refinement and foolproofness of industrial coatings.

"I'm looking for an old issue of Industrial Finishing where it tells how to get a blonde finish without bleaching!"

Recent progress in industrial finishes is the sum of so many steps that this review of only part of them may have left confusion. However, running through the separate items one can discern two threads or trends. The first is that air drying and baking times of many finishes are being steadily shortened. The second is that coatings are becoming more highly specialized and precisely fitted to their purposes. So long as the forces that created these trends operate we will continue along in the same direction. [END]

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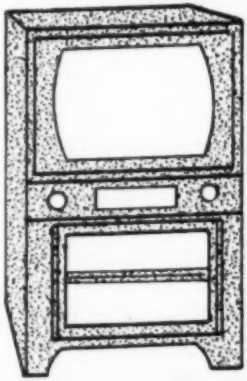

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Many examples are to be found. For instance, the manufacturer who ran his metal product through an automatic spray machine twice in order to cover a slightly raised ridge in the product. Achan ge in formulation of the enamel enabled him to eliminate the double coating. Then there was the custom shop that speeded up production by 50% on finishing small metal fittings by installing a mechanical unloader on the spindle conveyor of an automatic spray machine.

Still another case was the manufacturer of a relatively small wood product that really did not require a spray finish, but because he tried dip coating once without complete success, he continued with spray finishing. Finally, the use of correctly engineered holding racks for multiple dipping, plus a solvent saturation chamber to aid draining, permitted him to dip the product thus saving time and material which resulted in reducing the cost of coating.

These few examples will serve to show that when one man or one firm declares an idea is impossible or im-

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practical, another man or another firm will make it work successfully . . . for the betterment of the product, the operation or the cost or all three. Before giving up and concluding that something is impossible or impractical, perhaps further exploration will prove it to be otherwise.

W.A. Ross Made Sales Mgr. of Circo Equipment Co.

William A. Ross has been appointed Sales Manager of the Circo Equipment Company, Clark (Rahway), New Jersey, manufacturer of vapor degreasers, metal parts washers and solvents.

Mr. Ross has been active in the metal finishing field for the past 20 years, and the last four years has engaged in sales activities of metal cleaning equipment and solvents.

A member of the American Society for Metals and the American Electroplaters Society, his background of experience includes 10 years with Bendix Aviation Corp. where he was in charge of finishing operations at three of that company's plants. He also held similar positions with the Hammerlund Mfg. Co. of New York City and the Pitney-Bowes Postage Meter Co. of Stamford, Conn.

"Creative Selling" Conference by Detrex Personnel

Michigan and Northern Indiana sales representatives of the Industrial Equipment Division of the Detrex Corp., Detroit, manufacturer of industrial metal-cleaning machinery and chemicals, have concluded a conference at the Hotel Fort Shelby on "creative selling."

The conference, described as a refresher course in the numerous applications for metal degreasing equipment, was presided over by David E. Williard, sales manager of the division.

A. O. Thalacker, Detrex president, addressed the group at luncheon and reported that the consumption of industrial cleaning solvents in this year represented a 20% increase over 1952.

Use of ultrasonic waves to clean intricate metal parts was demonstrated at the conference.

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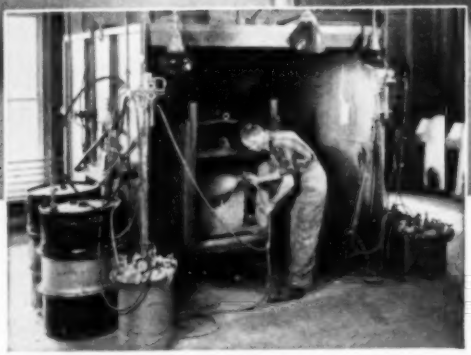
The best way to remove all dust, lint and sand particles before painting. Detroit Handy "Tac" Rags are ready for instant use. Never harden or dry out. Save labor and materials. Improve the finish. Eliminate costly rejects.

Recommended by your trade everywhere!

Standard of the FINISHING INDUSTRY Since 1934
DETRO MFG. & SALES CO., CULVER CITY, CALIFORNIA

How DeVilbiss helps over 1,000

One of the five spray operations where Caswell-Runyan sprayer uses DeVilbiss gun to apply rich, gleaming lacquer finish to TV cabinet.



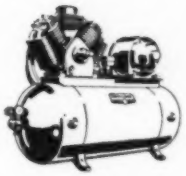
Since several lacquers are used at the same time on different cabinets, each spray booth is equipped with a full spray outfit for each finishing material.

Caswell-Runyan finish cabinets every day

Caswell-Runyan holds an enviable position in the woodworking industry. The Huntington, Ind., firm – first in the world to mass produce cedar chests – now concentrates on producing quality wood cabinets for leading makers of nationally advertised radio and TV sets.

According to A. J. Glass, Works Manager, getting the finest possible finish on their cabinets is just about their most important concern. "To create highly uniform, quality finishes and still maintain our 1000 a day production schedule is a severe test for spray equipment," says Mr. Glass. "But, we've used DeVilbiss products, exclusively, for 29 years and find they meet our most critical needs for fine finishes, rapidly applied and with little equipment maintenance. DeVilbiss service has also been helpful and prompt."

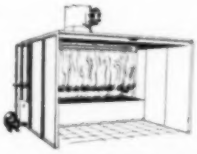
A DeVilbiss spray system or automatic painting machine may be just what *you* need to get smooth, uniform coatings with great savings in time, material and labor. Ask your local DeVilbiss supplier, our nearest branch office, or write us direct.



Air Compressors

Hose and Connections

Spray Guns



Spray Booths

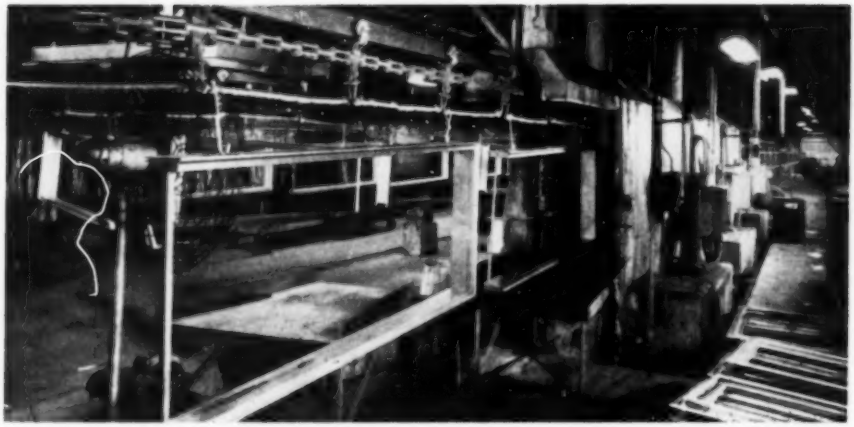
THE DEVILBISS COMPANY
Toledo, Ohio

Windsor, Ontario • London, England
Santa Clara, Calif.

Branch offices and distributors in principal cities throughout the United States, Canada and the World

FOR BETTER SERVICE, BUY

DEVILBISS



Steel door frames entering the washing machine, where they will be sprayed with a solution which cleans and phosphates at the same time. No precleaning is necessary. Photograph by courtesy of Oakite Products, Inc.

Phosphating Before Painting

BY ROBERT F. AYRES
Oakite Products, Inc.

PHOSPHATE COATINGS have been used since the early 1900's. They have come a long way since then. The original treatment consisted of phosphoric acid and ferrous sulfate, and required several hours to produce a satisfactory coating. Modern phosphating methods use a variety of formulas, and usually take only a few minutes to do the job, which may be to improve lubrication on metal surfaces, or to improve paint adhesion and increase resistance to corrosion. Some treatments have been further refined to combine cleaning and phosphating properties in one material, one operation.

The phosphating processes now in wide use for pre-paint conditioning —which is the scope of the present article—result in the conversion of a microscopically thin surface layer of the metal into a minute crystalline film of insoluble metallic phosphates. The coating, which is integral with the basic metal, greatly improves the metal's capacity to adsorb* paint, and thus improves

*Adsorption, according to Webster's Dictionary, is "a phenomenon consisting in the adhesion, in an extremely thin layer, of the molecules of gases, of dissolved substances, or of liquids, to the surfaces of solids with which they are in contact." A Chemical Dictionary defines it as "the taking up of a substance by a solid surface; concentration change at an interface."

A *LOT MORE* THAN FANS, DUCTS, HEATERS, AND PANELS

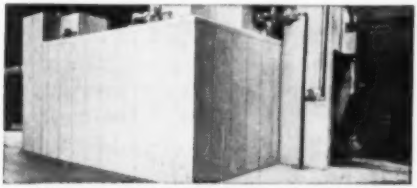
GO INTO

LANLY
FINISHING OVENS

● The proper adaptation and utilization of the essential component parts in every LANLY OVEN for maximum operating efficiency and economy, is a certainty being demonstrated every day in factories throughout the country. Specialized knowledge evolved from long experience and close cooperation with our customers enables us to design and erect better finishing ovens.

LANLY FINISHING OVEN Completely automatic LANLY A-Type Continuous Paint Baking Oven. Compact, built-in heating system affords rapid, uniform baking. Natural hot air seals at open ends. Space under oven can be utilized to advantage.

Two Continuous Laydown Dryers

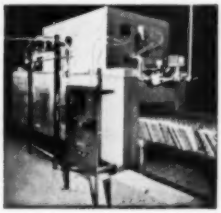


Three-Pass Oven with Air Seal Vestibules

Vertical Hollow Ware Dryer

Ceiling Suspended Continuous A-Type Paint Oven

Continuous Wicket Type Oven



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CLEVELAND, OHIO

Write for the NEW LANLY CATALOG

adhesion between metal and paint. The paint is locked to the crystals, and the crystals are locked to the metal.

The second big advantage of phosphate coatings is their ability to prevent the spread of corrosion beneath the paint. The coatings, because they are crystalline and porous, do not of themselves protect permanently against rusting—their corrosion-resistant ability results from their combination with the organic finish.

How Corrosion Attacks Metal

How does corrosion attack a metal surface? To the naked eye, a piece of cold rolled steel may appear smooth. Under the microscope, however, it reveals a very irregular surface—a series of peaks and valleys, which are electrically anodic and cathodic in relation to each other. Similar electrical differences are caused by mechanical stresses on the surface, or by foreign particles in the pores of the metal.

In the presence of moisture, these anodic and cathodic areas pair up to form tiny electrolytic cells. The flow of electricity in the cells carries iron away from the anodic areas, causing pits, and deposits iron oxides (rust) in the surrounding cathodic areas. Rust spreads, and having a weak physical structure, leads to paint failure. But even worse, rust has an alkaline reaction with moisture, and its spread puts ever larger surface areas in an alkaline condition. The alkali and the oily vehicle of the paint combine to form certain soaps which interfere with the adhesion of the metal and the paint.

Phosphate Coating is a Protective Blanket

Phosphate coatings protect against this electrochemical corrosion by smothering the anodic and cathodic peaks and valleys with an electrically inert blanket. This prevents the formation of pits and piles of iron oxides. It keeps the metal in a non-alkaline condition, eliminating troublesome soaps.

The phosphate film strengthens the interlocking grip between the metal and the paint. If the surface should later be damaged, and rust develop on the injured area, the phosphate film prevents creeping of the rust under the sound paint, and thus prevents further paint peeling. On articles where only certain parts are painted, the underlying phosphate film prevents the spread of rust from the unpainted to the painted surface. [*To page 80*]

"Well, how Corny can you get? . . . Says he's gonna saddle up old paint!"

All chemists wear white coats!

Unlikely and unimportant but even if they look alike there's an important difference between them. KLEM chemists have dealt with almost every conceivable problem in their field. Their extensive experience enables them to more readily comprehend plant situations than ordinary chemists. The KLEM laboratory, equipped with the finest technological equipment for duplicating exact plant conditions and procedures, enables them to determine the correct answer to tough problems.

Let us help eliminate your bottlenecks, assist you as we have others in establishing profitable production schedules.

Representatives in most industrial areas.

KLEM PRODUCT of the MONTH

MINIT KOTE

Cleans, neutralizes, phosphatizes in 60 seconds. Frees metal surfaces from all traces of oil and dirt. Deposits light, uniform, phosphate coating for better adhesion of paint to ferrous metals and aluminum. Write for details.

3 OF 20 STANDARD KLEM PRODUCTS

KLEM STRIPPER No. 73—Heavy duty hot stripper for paint and enamels, rinses easily, eliminates hand scrubbing.

WATER WASH COMPOUND No. 203—Stops corrosion, keeps lines clean, prevents adhesion of paint to water curtain. Excellent for recovery.

RUST-SOL No. 124—Concentrated phosphoric acid surface conditioner. Removes oil and rust. Provides slight etch to promote adhesion of paint. Meets USA 3-213, TAC-ES431 and MIL-C-10578.

KLEM Chemicals Inc.
14401 LANSON . . . DEARBORN, MICHIGAN

A distinction should be made between phosphate coatings and phosphoric acid cleaning solutions. The latter contain, in addition to phosphoric acid, organic solvents and surface active agents. Such solutions remove rust and grease at the same time; they also give the surface a slight etch and a thin phosphate film which help anchor the paint and prevent future corrosion. The high acidity of such cleaning solutions prevents the deposit of a substantial phosphate coating on the metal, however, and they are used principally when the pieces being treated are too large for washing machines or tank immersion.

Four Basic Types of Phosphate Coating

The crystalline films produced by modern phosphate coatings consist mainly of four basic types: phosphates of zinc-iron; zinc; aluminum and chromium; and iron.

The zinc-iron phosphate coating, widely used to prepare iron and steel for painting, is generally produced by the action of acid zinc phosphate solutions, plus accelerators, on the ferrous metal; zinc from the bath combines with iron from the work to form the mixed crystalline coating. The weight of such coatings may range from 100 to 600-mg. per sq. ft., but they may be built up to even higher weights when desired. Application is usually by spray machine for 1½ to 3 minutes, or by tank immersion for 3 to 5 minutes. This latter method is particularly effective when considerable paint absorption is desired. This same type of solution, with certain modifications, may be applied to all surfaces of objects containing such dissimilar metals as aluminum, cadmium, zinc, iron and steel.

The zinc phosphate coating is produced on zinc, zinc plate, or on galvanized surfaces by solutions similar to those which form the zinc-iron type on ferrous metals. Application is usually by spray or dip 2 minutes or less, and coating weights range from 75 to 200-mg. per sq. ft. Equivalent results may be obtained on cadmium surfaces in the same manner.

The aluminum-chromic phosphates are produced on aluminum surfaces in the form of an amorphous coating which weighs from 20 to 200-mg. per sq. ft. Treatment times run from 20 seconds to 5 minutes, and the solution may be applied by brush, spray or dip.

Iron Phosphates; What They Accomplish; How Applied

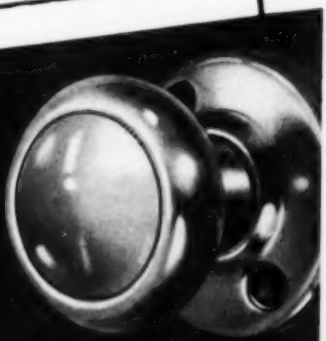
Iron phosphates are perhaps the most widely used type of coating today, because they are both easy to apply and economical. One solution usually cleans and phosphates; it is easy to maintain and control; acid-proof equipment is not necessary; and sludge control is a minor problem. While used mostly on iron and steel, this solution may be modified to treat non-ferrous metals as well. Iron phosphate coatings are best applied in pressure spray washing machines, although tank immersion may also be used. Time of treatment may vary from one to 5 minutes.

The metal surfaces must be thoroughly clean if the phosphating so-

BRASSWARE

answers to problems

in BRASS FINISHING



Exceeds specifications 20 times over! Specifications for refrigerator brass trim called for a finish to withstand 500 hours of 100% relative humidity at 110F. The lacquer being used by this Ohio company failed to stand up, causing a production snag.

Consulted on the problem, "The Unichrome Man" was confident it could be solved. Samples were submitted and tested by the company. Results were extraordinary. The corrosion resisting Unichrome Clear Enamel was adopted after 500 hours. But it then went on to remain in perfect condition for 11,850 hours – that's 493 days! – when attempts to break down the coating were discontinued.

Immune to paint removers. With doorknobs subject to spattering from housepaints, a lock manufacturer was looking for a clear finish that would remain unharmed when knobs were cleaned with paint removers. United Chromium solved this unusual requirement with an unusual baking clear synthetic – one with resistance not only to solvents but also to handling, moisture and exposure.

★ ★ ★

This quality is typical of both standard and specially developed Unichrome coatings. Consult "The Unichrome Man" about a better finish for *your* products.

UNICHROME Trade Mark COATINGS for METALS

Metallic ..... Organic ..... Decorative ..... Protective

Products of UNITED CHROMIUM, INCORPORATED

100 East 42nd St., New York 17, N.Y. • Detroit 20, Mich. • Waterbury 20, Conn. • Chicago 4, Ill.
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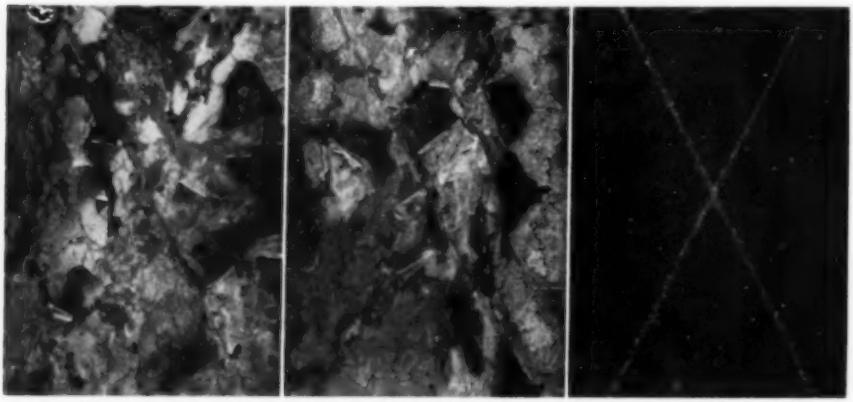
lution is to do its job. All millscale, grease, oil, and dirt must be removed from metals going into the zinc and zinc-iron phosphate baths, which contain the primary phosphates of these metals dissolved in "free" acid. Pre-cleaning may be accomplished with vapor degreasers, solvent emulsion cleaners, or hot alkaline solutions. Scaled or rusted stock will require acid pickling or shot blasting.

As for the complex, thin iron phosphate coating materials, their mild acidity makes it possible to combine cleaning properties in the material. Used in power washers, these solutions clean and phosphate at the same time. Precleaning becomes unnecessary, that is if the soils are not too heavy. Coatings imparted by such solutions are smooth and continuous, while the coatings from solutions containing phosphoric acid are more coarsely crystalline in structure.

A final rinse of chromic or phosphoric acid, or a mixture of the two, is recommended for all phosphate solutions used to form a base for paint. The residues left by such rinses are compatible with most organic finishes, and render the treated metal surfaces even more passive. Such rinses remove alkaline residues and unreacted phosphating chemicals.

Because of the complexity of phosphate treatments, and the wide varieties of metals, treatments, production schedules, and purposes to which they are put, it is suggested that the matter be discussed with the technical representatives of firms specializing in the field. They can fit the phosphating solution, and the method, to the plant's products and facilities. [END]



Panel A was cleaned in an alkaline solution, Panel B in a solvent solution, Panel C in a solution of Oakite CrysCoat No. 87. After thorough rinsing and drying, the three panels were given identical coats of clear lacquer. Scratches were cut through each lacquer coating and the panels were subjected to a standard salt spray test.

After 144 hours, panels cleaned in alkali and solvent were thoroughly corroded; lacquer coats had peeled and blistered in every area. The CrysCoat-treated panel showed only faint signs of corrosion in the area of the scratch, and a few dried-salt stains. There were no signs of corrosion under lacquer bordering the scratch, or at any other part of panel.

Looking *for sheep's wool under the sea*

The "wool" taken from the ocean bottom is a *sponge*—Keys Sheep's Wool—native to our Florida coast. It's highly prized because it is said to hold more water than any other natural sponge of equal size.

Just as some sponges have greater capacity than others . . . so it is with lacquer solvents. MEK (methyl ethyl ketone) will hold more lacquer solids because it has superior *solvency*. This means that lacquers containing MEK offer greater covering power at the same spraying viscosity.

MEK is the Number One low-boiling active solvent for both nitrocellulose and vinyl lacquers. Leading formulators have found that MEK cannot be replaced directly by any other solvent without loss in quality or increase in cost.

MEK is one of the Shell "quality group" of solvents, which includes—among others—MIBK, MIBC, and IPA. Your Shell Chemical representative will be happy to discuss the advantages to be gained from using MEK in your formulations.

MEK

We will be glad to send you the complete story on MEK, with the latest laboratory-proved information for lacquer formulators.

SHELL CHEMICAL CORPORATION

Chemical Partner of Industry and Agriculture

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Finishing Plaster Novelties

We are interested in the decoration, with bright colors and glaze finishing, of Gypsum or plaster novelties. What names and addresses do you have on file at present who manufacture or can give us information about a good durable finish?—*A.E.Mfg.Co.*

In a letter we are naming six companies near your locality; any one of them can probably supply what you need.—*Editor.*

Graining Rollers

Could you furnish us with the names and addresses of manufacturers that make or supply graining rollers?—*H.B. & Son.*

In a letter we are naming six concerns we have listed under Graining Rollers.—*Editor.*

Want a Testing Lab.

We have occasion to want lacquer samples analyzed for cold check, flow, elasticity, rubbing qualities, solid content, etc. Can you furnish us the names of some relatively nearby (Brooklyn, N.Y.) concerns who specialize in lacquer analysis, and what the costs may be?—*H.Furn.Co.*

In a letter we are naming five that we have listed on our reference cards. —*Editor.*

Coatings for Glass Windows

We noted with interest your article of some time ago pertaining to a solution that can be applied to window glass to reduce the inside heat. We would appreciate getting the name and address of the company that can supply this material, and also any other information you may have.—*J.W.Co. (Makers of Fine Furniture).*

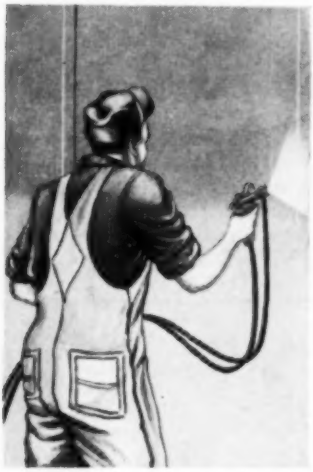
We note in Sept. issue, page 74, that "D. Cabt. Co." is seeking a glare-reducing glass paint. Would you send us the name and address of this company so that we may forward our technical literature on Sunshade paint for glass, which is being recognized as a leading product of this kind by many prominent users throughout the country?

I feel that it is time that we subscribe to your interesting magazine in order that we can become better informed about the industry which takes a large part of our output.—*Rex Ind. Paint Works.*

We would like for you to include, in your listings of new products, a liquid plastic finish which we are about to introduce for industrial and other window applications.

This product will be marketed in two forms—as a transparent finish to be called "Thruvu," and as a translucent finish to be called "Novu."

Application is by spray directly on the glass. Primary purposes are to reduce penetration of ultra-violet and



off again - on again - clean again with

"LIQUID ENVELOPE"
STRIPPABLE BOOTH COATING

Spray "Liquid Envelope" on a clean booth. When over-spray accumulates, break coating and peel off in great big sheets. Re-spray—and you have a clean booth in minutes. That's the low cost way to keep spray booths firesafe, lighter, better ventilated, too.

NEW USERS: Order a 5 gallon Test-Sample at the drum-lot price. That's the way hundreds of smart operators learned how to save time and money on booth cleaning.

BETTER FINISHES & COATINGS, INC.

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122 EAST 7th STREET, LOS ANGELES 14, CALIF.

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Sprayway Co., Los Angeles, Calif.
Supplee-Biddle-Stoltz Co., Philadelphia, Pa.
(Industrial Division)
Tanner and Co., Indianapolis, Ind.
Tri-State Spray Equipment & Compresser Co.,
Omaha, Neb.; Rock Island, Ill.
In Europe:
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infrared rays, thus eliminating glare and materially lowering inside temperatures. In addition, the translucent finish will obscure visibility from the outside.

Application may be made on the inside or outside surfaces of windows. Useful life of the coating on the outside is about one year, and on the inside it will last indefinitely.

The coating is waterproof and may be washed with soap and water. Windows so treated become shatterproof.

When the film is no longer desired it may be easily peeled off in one sheet without the use of any chemical agents or tools. It will come off clean, leaving the glass exactly as it was . . .

The transparent finish is available in blue, green and amber; and the translucent finish in blue, green, black and frosted white.—*Seaboard Finish. . . . (Address on request.)*

Cocktail Table Finish

. . . At this time the question of an alcohol proof finish for cocktail tables and other small tables for home use, comes up. We are told such a finish is available but have not been able to locate any firm that makes it. We prefer an air-drying material, but will install a kiln if necessary. Material may be lacquer or any synthetic that will do the work.—*Woodcraft Shops.*

In a letter we are naming a few companies that can probably supply what you want.—*Editor.*

Webbing Lacquer

We are endeavoring to find a source of supply on a new type of paint which can be sprayed over an open space, forming a web. We would like to get the names of firms who are suppliers of this type of paint. If you have any catalogs along this line, please mail them to us.—*F. Corp. (Fabricators of Wire and Metal.)*

We believe that some of the several peel-off or strippable coatings will do this. In a letter we are naming several concerns who can probably supply what you want.—*Editor.*

"He goes against my grains."

Finishing (Bright Polishing) Aluminum in Coil Form

We have an inquiry from one of our customers who is interested in mechanically finishing aluminum in coil form. They would like to produce highly polished and decorative metal surfaces, such as those being processed by the American Nickeloid Co. in Peru, Illinois, and by Appollo in Chicago.

Would you be able to give us the names of manufacturers of equipment

for color retention on light finishes-here is

CRYSTAL CLEAR LACQUER

WATER WHITE

It's a new, time-tested material for preserving the original color of those beautiful grays, off whites, lime, pearl, sea mist, ermine and all pale, bleached and decorative effects so popular on furniture of today.

Crystal White Lacquer has excellent color retention, and it can be depended upon to protect the surface from the danger of discoloration due to exposure in the store or home.

A free working sample, together with finished wood panels showing the new colors, will be sent upon request. No obligation!

THE SCHAEFER VARNISH COMPANY
INCORPORATED
15TH AND MAGNOLIA LOUISVILLE, KY.

for coil polishing, and if possible, additional sources of material prepared in this manner?—*R.M.Co.*

Who can supply this equipment? In a letter we suggested a few concerns, but are not sure they have or can supply what is wanted.—*Editor.*

Gold on Plastic

We are interested in obtaining the name and address of the company mentioned in the item entitled, "Gold on Plastic," on page 82 of March 1952 issue of *Industrial Finishing.—M.Mfg.*

The name and address: Albert E. Sierad Co., Inc., 805 Mamaroneck Ave., Mamaroneck, N.Y. You might also contact Reflexite Corp., 114 Manhattan St., Stamford, Conn. (See page 70 of Sept. 1953 issue.)—*Editor.*

"But Haverhill, you're worried about getting high gloss finish, platinum walnut trouble, sanding problems and other things—even before you take over this foremanship."

Who Will Sell "Nigrosene?"

We are interested in obtaining a 5-lb. sample of "Nigrosene" for experimental purposes. We would appreciate your forwarding our request to a manufacturer of this item, preferably a manufacturer or representative in our area (Mount Vernon, N. Y.).—*D. C. Co.*

In a letter we are naming two N.Y. concerns who can probably supply the material named. Does any reader have a suggestion?—*Editor.*

Peel-off Coating to Stand Baking and . . . .

On page 80 of October 1953 edition of *Industrial Finishing*, in the "Letters from Readers," there is reference to a "peel off," bakable masking compound manufactured by Chem-Tech Industries. Would you please refer our company to Chem-Tech as one interested in such a compound?—*A.*

. . . We would appreciate your sending information on not only this type of material, but also other types of material that can be applied over a painted finish and be peeled off without marring that finish while parts to be assembled are sprayed in the assembly.—*Elgin S. Co.*

. . . Can you tell us whether or not this "peel-off" can stand going through alkali and phosphating treatments so that it could be used on painting racks, so that we could subsequently peel off the build-up on the racks rather than having to strip them with high caustics? If so, we would appreciate information as to where we can buy this material. If you do not have the information but believe that the manufacturer of this "peel-off" might

PERFECTION FURNITURE FINISHES

contain none of the conventional stearates or flattening agents but are flattened by synthesis giving a waxed effect and a hand rubbed appearance.

Outstanding advantages of PERFECTION FLAT FINISHES are . . . CLARITY OF GLOSS LACQUER EVEN IN LOWER SHEENS . . . SMOOTH . . . WON'T HAZE OR SWEAT BACK . . . WATER PROOF . . . LIQUOR PROOF . . . GRADES SUITED TO BUDGET AND DRYING TIME.

WRITE FOR SAMPLES

SEE THE DIFFERENCE FEEL THE DIFFERENCE

Perfection PAINT & COLOR COMPANY

INDIANAPOLIS 2, INDIANA

be able to answer this question, we would appreciate it if you would forward our letter to them.—*Orco.*

In a letter we are submitting names and addresses of several concerns who claim their peel-off coatings will withstand baking. Whether or not any of them will withstand severe cleaning and phosphate treating solutions, we do not know at this moment.—*Editor.*

Metal Preparation Books

Could you give us the names of some technical books dealing with various types of chemicals used in metal preparation prior to spraying? We would prefer the type of books that are written in "layman's language." —*P.S.Co.*

Only ones we know of, at the moment, are those prepared for distribution by companies that manufacture and sell cleaning and surface preparation compounds. In a letter we are naming several firms who probably will send you copies of their free bulletins on this subject.—*Editor.*

Airless Spray Painting

We read with interest the article on "Airless Spray Painting" in August issue of this magazine (starting on page 34) and would like to know more about the equipment and its capacity. Could you supply us with the name and address of manufacturers or suppliers of this type of equipment?—*M.C. & Co.*

. . . Will you please advise as to the manufacturer of this equipment?

In the course of calling upon the products finishing trade in Florida and Puerto Rico, I have been able to create considerable interest in this operation. Your cooperation and aid in locating the manufacturer of this equipment would be very helpful, and would you have the manufacturer of the airless spray equipment write directly to me?

I would like you to know that your informative and well edited magazine has been very helpful.—*R., Cocoa, Fla.*

It's Bede Products, Inc., 1100 Brookpark Road, Cleveland 9, Ohio.—*Ed.*

Steam Cleaning Nozzles

While reading the Random Comment section of *Industrial Finishing* for August 1953, I noticed, on page 7, an article concerning a new steam cleaning nozzle. No name or address was included, although there is mention that the nozzle has a recently patented center blade. Mr. Clayton has requested that I contact you and ask for the name of the manufacturer of this new nozzle.—*Clayton Mfg. Co.*

These nozzles are products of American Nozzle Corp., 30 Church St., New York 7, N.Y.—*Editor.*

Stripping off Baked Enamels

We are seeking information on conveyorized stripping of baked-on enamels. We would like to know if there are many companies using this method, the recommended stripping materials, type of equipment used, and any further information that would be helpful in engineering a set up of this type.—*H. U. Co.*

In a letter we are naming concerns who we believe can supply part or all of what you will need for a setup of this kind.—*Editor.*

INVITATION

Yes, this is an invitation to Furniture manufacturers from a furniture man whose farsighted thinking has made available those economies in labor and space in furniture finishing that are sweeping through industrial plants from Coast to Coast.

Now you can see first hand in practically every section of the country where furniture is made, the startling results of a DeBurgh Finishing System installation.

There is no high-pressure salesmanship to it. Enthusiastic owners of DeBurgh Finishing Systems themselves will be glad to tell you their story.

You cannot afford to wait to learn what a DeBurgh Finishing System will do for you. We invite you to write NOW for a list of furniture factories near you where you can see and hear first hand the PROOF of what can be done for you.

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Machines — from sewing to adding . . . boxes — from tackle to lunch . . . and hundreds of other metal products look better and stay better looking with Rockford *Wrinkle* Finishes.

In these quality-controlled specialty finishes you get complete, economical one-coat coverage even including metal imperfections and blemishes; a tough, durable protective surface; and a distinctiveness that puts more life into metal items.

Whatever your requirements, drop us a line and we'll comply promptly with a solution to your wrinkle-surface problem. If you have an Army or Navy contract calling for wrinkle finish, we can work with you to help meet rigid AN specifications.

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Affiliate
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Roller Coating Specialists

SLEEK

Whether you want your product to be easy on the eyes, smooth and silken to the touch, or streamlined to fit in with your packaging plans, much depends on the coating you select. Some products, too, present special problems in the rough handling they must withstand, or the long wear they must provide. Some products require custom coatings, laboratory-developed to meet extra requirements. If one of these problems is yours, may we suggest you consult with Rockford Varnish Company, where a competent staff of experienced technicians are constantly producing just such finishes for an endless variety of manufactured items. Your inquiry is invited . . .

Research, Quality, Service

ROCKFORD VARNISH *Company*
ROCKFORD, ILLINOIS

Manufacturers of Protective and Decorative Coatings

Affiliate
GORDON BARTELS CO.
Roller Coating Specialists

Overspray in Painting Hot Steel Drums

I am confronted with a problem which you may be able to solve for me. I am calling on a drum manufacturer who is having overspray trouble. The company is automatically spraying the body of the drum, with the center band white and the outer bands red. These drums are hot when sprayed, due to the hot-solution cleaning process. A fine mist of red overspray shows up on the center white band. However, when a drum is allowed to cool, this overspray problem does not occur.

This firm naturally realizes that the solution to the problem is to cool the drums after cleaning, and it is now in the process of installing a blower system. However, no explanation given can explain this phenomenon of overspray on hot drums. I would certainly appreciate your answer to this problem, if one is available.—*B.H.R.*

There could be either of two, or a combination of two reasons why your customer gets the red overspray on the white section of hot drums, and not on drums that are cool.

It is my thought that the hot metal gives off heat waves which cause cross currents of air, which carry the overspray and deposit it on the white section. When the metal is cool, and is revolved during the paint spraying operation, any movement of air will tend to follow the direction in which the drum is rotated.

The other reason may be that the heat of the drum, or rather the air surrounding the drum, is drying some of the small paint particles before they reach the metal surface, and is carrying these particles over to the white section.

You might suggest a little experimenting. If they use a bake enamel, try adding a retarder (slower drying solvent) to the enamel.

You might also try reducing the atomizing and fluid pressures to 60-lbs. and 20-lbs. respectively—or even reduce them slightly lower than this.

Through these experiments you may eliminate the need of cooling the drums before painting. I would appreciate knowing how this turns out, in the event you elect to try these or any other experiments.—*P. C. Bardin.*

Editor's Note: Perhaps the new airless paint spraying would solve the trouble.

To Finish Rattan Wood Key Tags

I have an order for 5,000 to 10,000 pieces of rattan wood, 1¾-in. long and about ⅜-in. in diameter, made into a key tag. I can buy the wood, the key chains, and do my own imprinting. However, finishing these pieces of rattan in the natural color is the problem that has had me stumped until I talked to one of the men at Cook Paint & Varnish Co., who told me about reprints of your article "Technique of Finishing Small Wood Turnings." [*To page 96*]

Du-Pros SHELLAC

Strictly pure, of course, and carefully made from fine ingredients, Day's Shellac is trade-marked Du-Pros from the double process which produces the best shellac varnish.

Industrial Finishes for Application by All Methods

LACQUERS
SEALERS
STAINS
GLAZES
FILLERS
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SPECIALTY FINISHES

• *IN STEP WITH THE TIMES*

JAMES B. DAY & CO.

CHICAGO 14

It would be necessary to tumble these once in a solution with some sort of pumice to remove the checks and smooth them down. I would want them finished in a clear lacquer, varnish or shellac to show the natural grain of the wood.

If you have any added suggestions as to who can and would do this, other than your reprint, I would appreciate hearing from you.—*B.E.T.*

I do not know just what you mean by using a pumice solution to remove checks and smooth the rattan. All of the rattan I have seen has a very smooth glass-like surface. I do not believe pumice or anything else will remove checks—that is, if we are talking about the same thing. My understanding of a check, is a fine crack, with the grain, similar to those found in wood.

In order to make any kind of finish adhere to these rattan pieces, it will be necessary to treat that natural glassy smooth outer surface by sandblasting, using an extremely fine grade of abrasive.

You might experiment by placing the 1¾-in. pieces in an open mesh wire basket. Place the basket in a sandblast cabinet, on supports that are connected to a vibrator which will cause the pieces to bounce up and down rapidly. Through this motion I believe they will turn from side to side, so that all surfaces will receive the effect of the sandblast. This might work better than tumbling.

After the hard glassy smooth surfaces have been treated by fine sand blasting, the pieces could be imprinted and then coated with a clear lacquer by tumbling. If you elect to use varnish, some means of force drying will have to be used. For the purpose intended, I would suggest a clear lacquer formulated for tumble application.—*P. C. Bardin.*

Petersen to Represent Parker Rustproof in Far West

Neil Petersen, who for the past eight years has been a Parker Rust Proof Co. Technical Representative in the Detroit area, has been transferred to the West Coast to serve the needs of that region.

Mr. Petersen has worked closely with the automobile manufacturers in Detroit throughout his service with Parker, and brings his extensive experience in this industry to Parker's automotive accounts in the Pacific region. He will work out of the Pacific Coast Region Office at Maywood, California.

Pyrene Air Foam Systems

Air foam fire extinguishing systems designed and manufactured by the Pyrene Mfg. Co., Newark, N.J., are now offered for sale and installation through the nationwide organization of the Grinnell Co., Inc., Providence, R.I.

The non-exclusive arrangement with Grinnell does not alter the sale of Pyrene air foam systems, mobile and portable equipment through Pyrene's own district offices and air foam jobbers.

Binks' New Canadian Plant Is in Toronto

The opening of its new Canadian plant on October 5 at 14 Vansco Road, Toronto, Ontario, is announced by the Binks Mfg. Co., of Canada, Ltd., makers of spray painting equipment. This additional facility was planned by the Binks organization to provide better service to the fast-growing and very important Canadian market.

With the sales of Binks products increasing throughout Canada, it was essential to erect a new and completely modern building to assure improved product distribution and better customer service. Relocation in Toronto, an important railroad and distribution center, places the Binks Mfg. Co. in a favorable position to serve customers in Canada.

This new building, which provides for complete sales and service operations, replaces the Binks Plant formerly located in Windsor, Ontario.

Binks Toronto sales manager, Ray Pineau, will make his headquarters here. Roy A. Higgins is the office manager.

Binks direct representatives in Canada are Benjamin M. Carter in the Windsor-London area. Robert Attaway in the Toronto-Hamilton territory and Kenneth Alguire, working out of Montreal, who will cover the province of Quebec. Robert L. Bateman of Windsor, Ont., is Secretary of Binks Mfg. Co. of Canada, Ltd.

Binks products will continue to be distributed and serviced in Western Canada (Manitoba, Saskatchewan, Alberta and British Columbia) by J. B. Carter, Ltd.

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"Drum Chainer" Cleans Inside

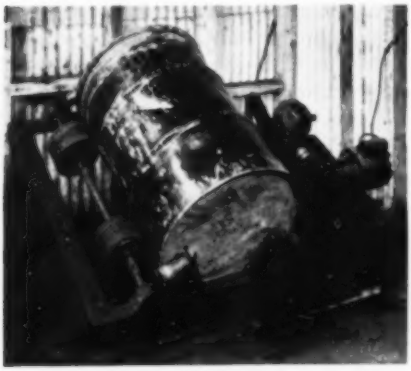
The Vol-U-Meter Co.'s "Drum Chainer" is a heavy "cradle" in which a 55-gallon drum (with chain and solvent inside) is placed in tilted position and rotated by power to clean the interior of the drum.

Referring to this equipment, Mr. E. L. Marble of The Vol-U-Meter Co., P. O. Box 54, Buffalo 16, N. Y., says in a letter:

"The first machine we built was installed at the Feldman Barrel & Drum Co. in Buffalo and has been in constant operation for two years, for cleaning the interiors of 55-gallon standard drums. During that time, we have had no calls for service or repair parts . . .

"If there is any business that will give steel drum cleaning machinery 'the works,' it is the drum reclaiming industry. They handle all types of drums, that are contaminated in almost every conceivable way, and cleaning machines are in constant use, usually under the worst operating conditions.

"The 'Drum Chainer' provides a slow rocking, as well as a fast rolling motion, cleaning the interior thoroughly, and in the shortest possible time. Construction is such that motor and other moving parts are well out of the 'wet' area; this reduces service to a minimum, by making lubrication easy."



The whole unit slowly "rocks" the drum as power rotation proceeds with chain and the cleaning fluid inside.

New Heat-Resistant, Non-Yellowing Enamel

Using a new method of harnessing inorganic to organic materials, the paint industry has formulated a heat-resistant, non-yellowing enamel in the medium cost bracket for coating household appliances and other equipment exposed to sustained, moderately high temperatures.

Chemists for The Sherwin-Williams Co., Cleveland 1, Ohio, developed the new finish after four years of research, according to Donald S. Gaarder, Assistant General Manager of the company's General Industrial Division.

"The new coating is a modification of the silicone class of materials," Gaarder said. "Laboratory and customer tests have proved that the finish retains the desirable heat-resistant properties of inorganics, together with the versatility and economy of an organic finish.

Currently the finish is offered in white only, but Gaarder reported his

"Lacquers are our baby . . ."

"I can't take it anymore!"

If inferior lacquers, and lacquers that are playing havoc with production costs and quality, are causing you grief, maybe it's time to call in The National Chemical and Plastics Co.

We produce lacquers to the highest standards in the industry, for some of the largest users in the world, to meet the most exacting demands.

If you use lacquer finishes, it will pay you to write, wire, or phone NCP. Do it today.

THE NCP National CHEMICAL AND PLASTICS COMPANY

1432 Philpot Street Baltimore 31, Md.

company is prepared to produce the material in a range of colors if manufacturers want it in different shades.

The protective coatings industry has utilized the inorganics for some time in finishes designed to withstand extreme temperatures, but this type of material involves comparatively high production costs. The newly developed enamel, Gaarder pointed out, is offered at a price approximately one-half that of present silicone finishes.

The goal was a durable, non-chipping, medium cost finish to meet the exacting requirements of manufacturers of stoves, space and wall heaters, roasters, deep fry units and similar products. While heat-resistance was a primary quality, the coating had to possess high impact resistance to prevent chipping, conceded to be a substantial cost item. It retains its attractive gloss despite exposure to high temperatures.

The new finish, labeled "Kemclad Hi-Heat Enamel," is recommended for use on phosphatized and clean steel. Its adhesion qualities are described as excellent. Other tests to which the enamel has been successfully subjected include salt spray, hot grease, humidity, chemicals and household cleansers.

The material is formulated for spray application. It is reduced 20% with xylol or toluol for spray application. The baking period is 30 minutes at 400° F.

Quick-detachable Swivel Air Connection

A new, compact, quick detachable air connection, said to provide almost complete free flow of air to air-powered tools, is announced by the Binks Mfg. Co. of Chicago. Binks claims that this new Q-D connection, which is recommended for the air hose coupling on paint spray guns and other air-operated equipment, slashes pressure drop at the connection to only 5%. The important significance of this fact, the maker points out, is that repeated laboratory tests on other standard quick-detachable connections show pressure drops at the connection "bottleneck" ranging from 21% to 57%.

Other advantages claimed by the manufacturer for this new Q-D connection include full 360° swivel action. No longer must the operator twist the air hose, which is difficult when the hose is under pressure. The spray gun or other tool can be rotated on the base to bring it into position.

Once a spray gun, or other equipment, is fitted with this connection, an operator cannot strip or cross thread connections while attaching the air hose. In this way the use of this connection removes any danger that a costly air tool may be made unfit for service by carelessness in attaching it to the airline.

One short push and the connection clicks tightly into place. Air tool and airline instantly become a leak-tight unit. This new device is considered particularly useful with spray guns, when quick color changes are made by changing guns.

Repeated tests that proved the pressure drop did not exceed 5%, when a

A quick-detachable air connection that does not form a bottle-neck in the air flow. Pressure drop is only 5% at 75-lbs. pressure.

Conveyor Line Finishing

EXPERIENCE!

Webster says, EXPERIENCE is; "Personal trial; proof or test; frequent trial; continued and varied observation; the knowledge gained by trial or repeated trials."

Our technical staff qualifies completely under this definition as experienced men in the field of Conveyor Line Finishing. They have observed and contributed to the development of C.L.F.* since its inception. The knowledge they have gained through "trials" and "repeated trials" is invaluable.

They know that any C.L.F. operation is no better than its weakest link or most troublesome spot. They also know where to look and what to do when they find the trouble spot.

If you are planning a new C.L.F. set-up, or if you are planning to convert your finishing production to C.L.F., our technical men are at your service without obligation. A phone call, wire or letter will give you the details of the recommended procedure to work out and solve your particular problems.

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* Conveyor Line Finishing.

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Q-D connection was used, were conducted at 75-lbs. per square inch inlet pressure with 20-cu. ft. of air flowing per minute through typical quick-connection set-ups.

The connection is readily broken by a slight downward pull on the sliding collar. Tugging or twisting is unnecessary.

The new Binks Q-D swivel connection is made for standard air hose sizes with standard pipe threads. They fit all Binks accessories, spray guns and spray painting equipment.

Complete information and prices are contained in Bulletin Q-D, just off the press. For free copy of Bulletin Q-D, write to Binks Mfg. Co., 3116 Carroll Ave., Chicago 12, Ill.

Lubricates Overhead Conveyors

How to automatically lubricate entire conveyor lines—trolley wheels, chains, drives, carriers and rollers—without stopping the line, thus eliminating shutdowns for lubrication, work spoilage and hazards of lubrication is illustrated in a new catalog sheet distributed by the Alemite division of Stewart-Warner Corp., 1826 Diversey Pkwy., Chicago 14, Ill.

The utilization of Alemite's "big three" in industrial lubrication—conveyor trolley wheel lubricator, Accumeter centralized lubrication and Oil Mist all fully automatic—insures economic and dependable lubrication of entire lines.

The conveyor trolley wheel lubricator goes to work at the flick of a switch and lubricates every wheel on both sides of the track, delivering an exact, measured amount of lubricant to each wheel. One filling of the container provides 25,600 shots of oil or grease, enough for approximately four miles of track.

Alemite's Accumeter centralized lubrication system protects main drives and motors by delivering at selected time intervals a measured filtered shot of fresh lubricant, flushing out dirty, worn grease. The Accumeter valves are located on or near bearings of main drives, motors or other assemblies and are fed lubricant through tubing from an inlet block or pump located conveniently at floor level.

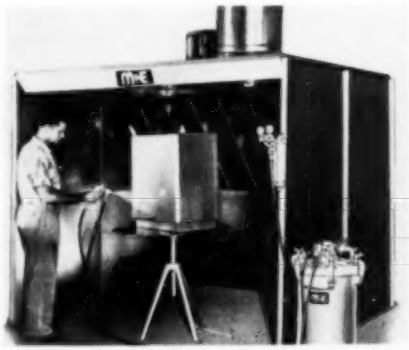
Chains, pendants and other conveyor parts—formerly difficult to lubricate—can now have time-saving, fully automatic lubrication with Alemite Oil Mist. This system atomizes oil into mist, distributes it through tubing to bearings and bathes all surfaces with a cool film of clean oil.

It goes wherever needed—to groups of bearings, slides, chains or gears. The Oil Mist system reduces oil consumption up to 90%, while at the same time the air flow through the bearings prevents infiltration of dirt.

Dry Type Paint Spray Booth

New "Uniform Static" baffles have been incorporated in the improved M & E dry-type paint spray booths. This improvement assures future users an ideal control of air flow through the paint booth under varying conditions.

The removable, vertical hung baf-



M & E's packaged unit dry spray booth has vertical baffles to prevent air turbulence.

FREE!

Guide to industrial uses of Sundstrand Air Sanders

How to save time and money on maintenance, production

See how leading manufacturers use *Straight-Line Action* Sundstrand Air Sanders for all types of finishing operations on wood, metal, or plastics. Find out how you can duplicate hand sanding with this pioneer air sander which moves the pads back and forth instead of in a circle . . . leaves no swirls, no scratches, no pressure marks. Learn how you can use faster-cutting, coarser grit paper to reduce sanding time . . . how one machine sands wet or dry . . . on flat or curved surfaces . . . even along side moldings and in tight corners. Here are just a few of the uses pictured:

- **Sanding filler on castings**
- **Preparing metal for priming and final finish**
- **Sanding plastics**
- **Wet sanding base coat on wallboard**
- **De-burring rivet holes on aircraft**
- **Polishing dies**
- **Refinishing boats, desks, work benches**
- **Sanding and rubbing fine furniture**

Act now! Contact your local supplier or write for Bulletin IF-11

SUNDSTRAND

SUNDSTRAND AIR SANDERS

SUNDSTRAND MACHINE TOOL CO.

PNEUMATIC DIVISION, ROCKFORD, ILLINOIS

fles correctly direct the flow of air across the painted work to an opening in the rear or top of the booth. This breaking up or spreading out of the air stream decreases air turbulence in the spray booth.

M & E booths, incorporating the "Uniform Static" baffles, are produced in standard stock sizes from 4-ft. wide to 12-ft. wide, and 7-ft. to 8-ft. high. Units are fabricated of heavy gauge steel with welded corners punched on 6-in. centers for easy assembly in the field.

Complete units include the M & E approved type belt driven exhaust fan. Deliveries are available from local dealer stock and direct factory shipments.

Bulletin B200 is available on request from the manufacturer, M & E Mfg. Co., 2580 Winthrop Ave., Indianapolis 5, Indiana.

New Finish Looks Like Plated Aluminum

Two new products announced by the Parker Rust Proof Co., 2176 E. Milwaukee Ave., Detroit 11, Mich., are Parcolac 101 Black and Parcolac 102 Aluminum, new pigmented phenolic resin finishes for use over Parco Compound.

Developments of the Parker Research laboratories, the new Parcolacs have undergone extensive laboratory and field tests, and have been proven in production runs on iron and steel articles of many sizes, shapes and uses.

Parcolac 101 Black produces a deep, intense black color; Parcolac 102 Aluminum creates an extremely even, light gray finish which looks like a plating of aluminum. Both products have excellent corrosion resistance. Production pieces, finished with these Parcolacs over Parco Compound, have withstood 100 hours in salt spray.

Improved Acid Hose

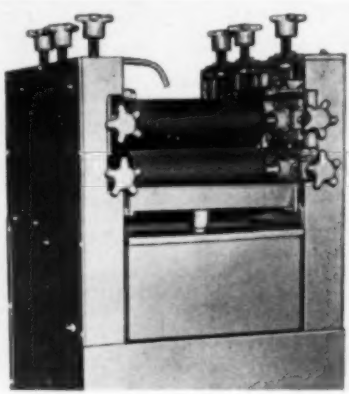
Development of a hose highly resistant to a wider range of acids, salts, alkalies and other solutions has been announced by Raybestos-Manhattan, Inc., Manhattan Rubber Division, Passaic, N. J. The tube of this hose is also claimed to be highly abrasive resistant to withstand slurries.

Coiled-Stock Coating Machine

A new roller coating machine has been developed by Union Tool Corp., Warsaw, Indiana, for coating coiled stock. It automatically feeds the material from the uncoiler, deburrs the edges, coats both sides with drawing compound, and feeds the press.

The new machine is equipped with four sets of rolls. The first is of hardened smooth-ground steel and deburrs the sharp edges. Next are the rubber-covered nip rolls which feed the coiled steel from the uncoiler. Then comes the doctor rolls which are of smooth-ground chrome-plated steel. And last a set of smooth-ground rubber-covered coating rolls.

A circulating pumping unit with 5-gallon sump tank conveniently lo-



Applies compound or paint to coil stock.

Proper Finish

IS ALL IMPORTANT TO YOUR PRODUCT...

BARRETT skills produce superior:

- Furniture Finishes
- Wood & Metal Lacquers
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- Lacquer Enamels
- Metalescent Finishes
- Synthetic Enamels
- Varnishes
- Wrinkle Finishes
- Hammer Finishes
- Specialties of all Types

. . . because it is, why not let truly qualified experts suggest one that is perfect in every respect?

BARRETT VARNISH COMPANY has 83 years of experience in creating and producing industrial finishes of every sort; will be happy to offer their technical services so that your product may gain distinction of appearance through a superior finish.

Let our technicians tackle your finishing problems—no obligation, of course!

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a complete line of dependable industrial finishes since 1870

cated under the rolls of the machine supplies the drawing compound or other coating material to the doctor and coating rolls.

The drawing compound is held between the crotches of the doctor and coating rolls. Calibrated hand wheels, mounted on off-bearing side of machine, provide the means for adjusting doctor rolls in and out against the coating rolls to permit accurate control of thickness of application.

The machine is powered by a 1-hp. motor complete with magnetic starter and foot control conveniently located for the operator. It is equipped with antifriction, self-aligning ball bearings and constructed of heavy welded steel.

Pressure Sensitive Tape That Withstands Oven Heat

A new pressure-sensitive tape for the metal finishing industry—for high heat masking use by aircraft and electronic manufacturers on such treated metals as anodized aluminum, pickled steel, and dichromated magnesium—was announced this month by Minnesota Mining & Mfg. Co., 900 Fauquier St., St. Paul 6, Minn.

The new tape, "Scotch" brand high heat masking tape No. 214, is expected to find widespread use. It is designed for masking use in oven heat up to 325° F. and is capable of withstanding "much longer bake cycles than previously possible." Laboratory and field tests show that the tape can be used in oven cycles even as high as 375° F., and at room temperatures as well.

In addition, tape No. 214 has the ability to remove cleanly from anodized aluminum and other treated metal surfaces without leaving adhesive deposit. It is available in ¼ to 36-in. widths on 60-yard rolls. The tape is also being die-cut by paper converters to customer specification.

Fast Electro Cold Stripper

This cold stripper is non-inflammable and non-injurious, but it removes hard adhering coatings quickly and completely; removes paints, baked enamels, lacquers, wrinkle finishes and 3M Scotchlite.

Dip the article to be stripped in Cold Stripper, allow a brief interval for the coating to become loosened from the metal, remove article and shake off clinging stripper; then wash the treated surface with a pressure stream of water or wipe it with clean cloths, and refinish immediately.

This stripping treatment doesn't harm precision parts made of aluminum, brass, copper, magnesium, zinc, steel, cast iron or alloys of these metals. It loses very little strength in the tank, through usage or evaporation, and may be strengthened by addition of new stripper as required.

A sample will be furnished or five gallons will be supplied at the drum price by the manufacturer, Allied Finishing Specialties Co., 2641 W. Grand Ave., Chicago 12, Ill.

Spray "Booth Shield" Coating

A product for great efficiency and low costs in connection with cleaning paint spray booths is announced by Thompson & Co., Allegheny Ave., Oakmont, Penna. Designated as "Booth Shield," the substance protects the inner surfaces of spray booths as well as turntables and stands, so that when paint overspray accumulates it may be removed easily and quickly.

"Booth Shield" is of a paste-like consistency and is a milky-white in color. It can be applied to any surface by brush, trowel or knife to a thickness of about 1/16-in. Since it always retains its original consistency it may be used, after application, in either of two ways. First, it may be covered by any common type of

new

National Air Sander

STRAIGHT-LINE ACTION...SINGLE PAD

FAST • LIGHTWEIGHT • VIBRATIONLESS

MODEL 600

$82.50

Here is National's new, powerful, high-production sander which weighs only 5 pounds but operates at 3200 rpm. Rapid stock removal is assured by the 5/16" stroke and 25 sq. in. of abrasive area. Either felt or rubber backing pads are available, and a built-in water spray makes wet sanding easy. National manufactures a complete line of block sanders, offering either orbital or straight line action . . . electric or air driven.

Write for further information today!

NATIONAL NS SANDERS

NATIONAL AIR SANDER, INC.

2820 AUBURN ST. ROCKFORD, ILLINOIS

paper. In this method, when paint overspray builds up, the paper can be stripped off by hand or with a scraper, and new paper added. Or, if desired, the shielding material can be used alone, so that overspray strikes it directly. Then, after paint accumulates, both paint and the shielding can be removed easily with a scraper or wide putty knife. As no waiting or drying time is required, booths can be used immediately after application of the coating. It is available in 5-gallon cans, or drums.

One-Coat Counter-Rust

The Adelphi Paint & Color Works, Inc., 86-00 Dumont Ave., Ozone Park 17, N. Y., announces a new product, Adelphi One-Coat Counter-Rust.

Counter-Rust will protect a steel structure from corrosion for a period of from five to ten years, and with only one coat. It is easily applied on any steel structure over any film of paint in fair to good condition. Minor rust spots will be isolated and neutralized by counter-rust. Maximum protection of the metal surface is achieved through top resistance against moisture.

Counter-Rust is pigmented with a carefully blended pigment combination to provide for anti-corrosive chemical reaction within the paint film.

Combines Water Whiteness and Chemical Resistance

A synthetic baking type finish introduced by Maas & Waldstein Co., 2110 McCarter Highway, Newark 4, N. J., Chicago and Los Angeles, manufacturer of industrial finishes, offers a unique combination of exceptional clarity and high chemical resistance. Almost water white in color, it is specifically formulated to provide a high degree of surface protection for silver, brass, nickel and other metals, without detracting from their natural color and luster.

In addition to its high chemical stability, the new finish, known as "Durachem," is non-yellowing, even after prolonged exposure to sunlight or high temperatures. It also has good resistance to the effects of salt spray and perspiration.

Typical applications include builders' hardware, lipstick shells, vanity and cosmetic cases, pen caps and other metal parts. Where decorative effects are desired, finishes with the same high chemical resistance of clear Durachem can also be supplied in a range of colors.

Technical information and test samples of Durachem are available on request from Maas & Waldstein Co.

Temporary Hot-Dip Protective Coating for Metal

Shu-Coat is a hot-dip protective coating for the protection of precision instruments, tools, dies, machine-finished parts, and gauges. This coating protects the articles from rust, abrasion, shock and dulling of edges during storing or shipping. The coating is transparent and permits complete visual inspection and identification of the coated part. No volatile solvent involving a fire hazard is used, and there is no objectionable or disagreeable odor when Shu-Coat is heated for application.

Shu-Coat is easily stripped off by cutting with a knife and peeling from the object. The article is clean and ready for use when it is removed from its coating. Shu-Coat can then be melted for reuse.

Articles to be coated should first be cleaned thoroughly, both to avoid contaminating the melt and to increase the efficiency of the coating. After washing, the parts should be handled only with gloves because even though

Jiffy macerated paper pads and blankets are DOUBLY dependable

Courtesy of
WHITE
FURNITURE
COMPANY
Mebane, N. C.

Jiffy macerated paper pads and blankets protect both furniture side and top surfaces and their finishes.

The furniture floats in the soft cushioning of JIFFY PADS which absorb transportation shocks and vibrations. JIFFY PADS fit snugly, conform easily to any shape—prevent scratches and other surface damage.

Also available—JIFFY PADS AND BLANKETS lined with velvety soft "FACIAL TISSUE" for delicate surface finishes which require the ultimate protection.

JIFFY PADS AND BLANKETS meet the requirements of item 19501, note 2, paragraphs 1, 6, 16 as specified by the Uniform Freight Classification.

JIFFY MANUFACTURING COMPANY

General Offices: HILLSIDE, NEW JERSEY

Plants: Hillside, N. J.—High Point, N. C.—Salem, Illinois

Pacific Coast Representative: RAY T. EBERT CO., P.O. Box 550, Redwood City, California

the parts are subsequently coated, fingerprints from bare hands may induce rusting. The articles are then dipped in the hot, liquid Shu-Coat which solidifies rapidly upon withdrawal. Since Shu-Coat does not contract measurably upon cooling, it can be applied to articles that have sharp projections. A preliminary coat is applied to the projections only, followed by a general dip.

Shu-Coat is a product of Shuman Chemical Products, Inc., Industrial Village, 20 Factory St., Cedar Grove, New Jersey.

Turco-Solv, Quick Drying Safety Solvent

Development of Turco-Solv, a highly effective, quick-drying safety solvent, designed for the cleaning of electrical equipment, such as wiring, fuses, motors, switches, etc., is announced by Turco Products, Inc., 6135 S. Central Ave., Los Angeles 1, Calif. Especially formulated to replace carbon tetrachloride in all cleaning operations, Turco-Solv combines the least toxic solvents available, consistent with safety from fire hazard.

Turco-Solv is suited to many cleaning requirements. For example, it can be used for in-plant maintenance cleaning of electrical equipment, where a high-flash material is required. It can be used on the production line to remove grease pencil, chalk, ink or hand marks from motor generator sets. It can be used in a whirl parts washer as a substitute for vapor degreasing or handwiping. Or, it can be used as a maintenance tool in the transportation field.

Turco-Solv quickly and effectively removes all deposits of grease, oil, metallic particles, carbon dust and other causes of dangerous and costly flashovers. It leaves no oily desidues; requires no after-neutralization.

Turco-Solv is non-corrosive and is safe for use on all metal and wood surfaces, as well as on well-bonded paint. It has a Tag Closed Cup flash point of over 200° F. It will not leave flammable vapors or residues upon evaporation. Since it is non-conductive, Turco-Solv can be used to clean motors while they are hot. It is applied by non-atomizing low pressure spray or brush.

Heat-Resistant Aluminum Paint

It's now possible to aluminum plate all high heat metal surfaces with just the simple stroke of a brush!

Sapolin's new fast drying aluminum paint—perfect for plating burners, stoves, hot pipes, oven, radiators, and other metal surfaces, can withstand temperatures up to 1200° F. without discoloring or blistering. With a one coat application its bright silvery finish prevents rust, cracking or peeling.

This new hard wearing paint contains a combination of fine aluminum and a recently discovered chemical binder. It defies heat because the finish actually fuses with the metal as temperatures are increased. Ready-mixed, it can be simply applied by brush or spray, drying hard in just 30 minutes. It is a product of Sapolin Paints Inc., 229 E. 42nd St., New York 17, N. Y.

Plans for Industrial Finishing Exposition

Although the Convention and Industrial Finishing Exposition of the American Electroplaters' Society is nearly two years away, plans have been launched and developments are under way to make this 1955 metal finishing parade of progress the biggest and best in the Society's 40 year history. It will be held in the Cleveland Auditorium June 20 to 24, 1955.

Harold E. Bartlett of American Decorating, 1849 W. 24th St., Cleveland, Ohio, has been appointed exposition manager, responsible for space sales and promotion. He will work directly with the Society's Cleveland industrial finishing exposition committee.

GET AMAZING SAVING

WITH A *GASWAY*
CONTINUOUS METAL
CLEANING—TREATING—
ROLLACOATING LINE!

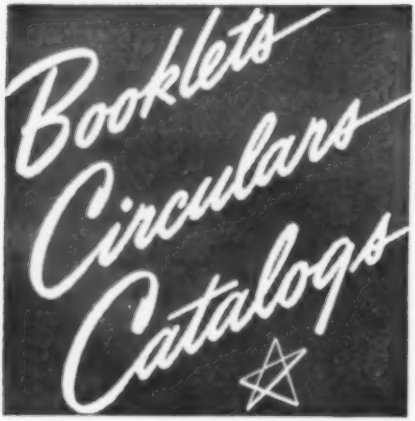
KoolVent of Indiana is one of the many companies making amazing savings using Gasway Continuous Metal Cleaning, Treating and Rollacoating lines. Two men operating this continuous system convert raw aluminum strip, from two inches to twelve inches wide, to finished recoiled stock at the rate of 42 lineal feet per minute. *Both sides are coated at the same time with different colors on each side.*

Saving on paint is another great economy. In this particular operation one gallon of paint covers about six hundred square feet of aluminum with a film .001 thick, the amount required for extreme durability. This coated stock is then roll formed after finishing, tremendously increasing the speed of finished part production.

GASWAY CORPORATION

Write today for this story—
"How to Save by Coating Before Forming"

6463 N. Ravenswood Ave., Chicago 26, Illinois



C.E.S. Co. Safety Catalog

Chicago Eye Shield Co., 2300 Warren Blvd., Chicago 12, Ill., announces its new 64-page catalog No. 27 showing a wide variety of head and eye protective equipment for industrial use. The book contains hundreds of illustrations covering the many types and sizes of CESCO safety equipment.

Contents include safety glasses, goggles, helmets, face shields, respirators, masks, hoods, aprons and sleeves.

Protective Coating Brochure

An illustrated bulletin on Zincilate, the self protecting, anti-corrosion coating, is now ready for distribution.

This bulletin explains what this coating is, and what it does. Pictures show a few of its uses. A table helps you decide which of the five basic formulations are suited to your requirements.

For a copy, write Industrial Metal Protectives, Inc., 401 Homestead Ave., Dayton 8, Ohio, and ask for bulletin Z-853.

Ethyl Cellulose Booklet

A new technical booklet about the use of ethyl cellulose in specialty coatings is now available from Hercules Powder Co., Wilmington, Dela.

The unique properties of ethyl cellulose are being utilized in coatings for widely different surfaces including plastics such as polystyrene, on rubber, metal, wood, and paper. It is also being used as the base of many liquid adhesives, strippable protective coatings, and gel lacquers.

The new technical booklet contains starting formulations for many of these applications for ethyl cellulose, as well as information about the solvents and stabilizers used in ethyl cellulose coatings.

32-Page Handbook on Precision Barrel Finishing

Lord Chemical Corporation, York, Penna., manufacturer of chemical compounds for precision barrel finishing, has issued a 32-page handbook and catalog on "Lorco" compounds for descaling, deburring, abrasive cut-down, non-abrasive cut-down, finishing, coloring, burnishing, metal cleaning and rust inhibiting. Lord Chemical Corporation is also a manufacturer and distributor of tumbling barrels, tumbling media, auxiliary equipment, and supplies.

The catalog's introduction states that most of the compounds listed are entirely new and unique in the field of barrel finishing, assuring uniform low microinch finishes and adherence to very close tolerances, while yielding excellent metal color and luster. Copies of the catalog and detailed technical data sheets on each compound may be secured by writing: Lord Chemical Corporation, 2068 S. Queen St., York 9, Penna.

Insulation Folder

A new 4-page folder about Foamglas, the long-life, all temperature insulation for tanks and other equipment is ready for distribution.

The folder presents the physical properties of the cellular glass insulation and lists the sizes and shapes available and recommended thicknesses required for temperatures ranging from —50° to 800° F. Condensed specifications and photographs of applications make the folder an ideal reference for engineering and maintenance personnel.

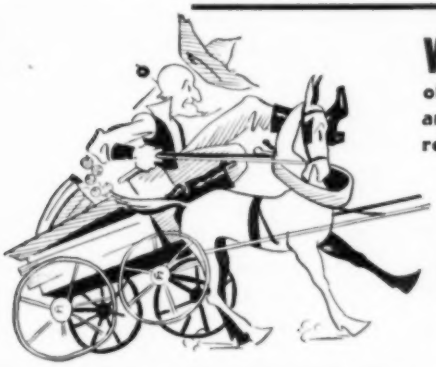
The folder is available from the Pittsburgh Corning Corp., One Gateway Center, Pittsburgh 22, Penna.

New Vapor Degreasing Book Offered Free

The Circo Equipment Co., 120 Central Ave., Clark (Rahway), N. J., has compiled a comprehensive work on the subject of vapor degreasing which, according to President Melville Morris, is the most complete volume available on this important phase of metal cleaning.

Circo's Vapor Degreasing Manual comprises 34 pages of detailed information ranging from a description of degreasing processes to maintenance and trouble-shooting.

The volume is fully illustrated with diagrams and cutaway photos. After describing and portraying the basic modes of degreasing, the work describes the general and specific designs of degreasing equipment. There is a complete section on installation of equipment, with a description of problems encountered and



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ELECTRO COLD STRIPPER

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how to meet them. Other full sections deal with operating instructions and actual cleaning of work.

Special attention is given to maintenance of equipment, "trouble shooting" and servicing. Solvents are also discussed in detail, as well as types, usage and operation of solvent recovery stills.

Belt Grinding and Finishing

A new 12-page, illustrated brochure, "The 3M Method of Belt Grinding and Finishing", is now available upon request from Minnesota Mining & Mfg. Co., 900 Fauquier St., St. Paul 6, Minn.

The booklet describes the 3M method, using coated abrasive belts, as a high-speed means of grinding and finishing flat or contoured surfaces of all kinds of metal ranging from soft brass to super hard tungsten carbide, as well as glass, plastics, ceramics and hard rubber.

In addition, it illustrates by means of photographs and drawings eight abrasive belt machines for a wide range of typical grinding applications in operations ranging from those of the small shop to the large factory.

Big Picture Book Story of R. C. Mahon Co.

"A Picture Story of The R. C. Mahon Co." is the title of a 46-page, two-color, profusely illustrated book designed to portray the company's extensive metal fabricating and production facilities, its products and services, and its capacity to serve industry.

In this book (page size 11 x 15-in.) the activities, products and production methods of the Eight Divisions of The R. C. Mahon Co., 6565 E. Eight Mile Road, Detroit 34, Michigan, are treated separately. It unfolds a picture story of the company's over-all operation which is not only interesting and impressive, but highly educational as well.

The book was produced by Anderson, Inc., of Detroit.

"Blast Cleaning" Booklet Free

"Blast Cleaning," a new booklet (32 pages 8½ x 11-in.) written by Victor F. Stine, vice president, Pangborn Corp., Hagerstown, Md., explains abrasive cleaning in a new way.

Its purpose is to supply non-technical information to anyone who would like to know more about the possibilities of blast cleaning in his field. The story begins with a discussion of the three basic advantages of the process: faster cleaning, cheaper cleaning, and improved quality of finish. This leads to a brief analysis of where it can be used and how the abrasive is forcibly propelled.

Blast cleaning has experienced four major advancements which have helped industry increase production standards: the invention of mechanized cleaning equipment; the adoption of metal abrasive; the use of centrifugal force; and gearing the cleaning department to the production line. These have all contributed to the development of the completely automatic plant, which is so close to hand.

The economics of blast cleaning are discussed in terms of the type of surface to be cleaned, finish required in a specified time, and the price per piece cleaned with lowest possible maintenance cost.

Metal Surface Treatment For Finishing

New and improved methods of treating metal surfaces with peroxygen compounds are described in a bulletin based on additional research and development that has occurred in the last year.

The types of surface treatments include bright dips, cleaning solutions, passivation and inhibitors. Metals involved are steel, aluminum, brass, silver and stainless steel.

The peroxygen compounds used are hydrogen peroxide, compounds forming hydrogen peroxide in solution, persulfates, and peracids. Details on their use, including numerous solution formulas are given and examples are cited.

Copies of "Bulletin 51, Surface Treatment of Metals with Peroxygen Compounds" may be obtained free from the Buffalo Electro-Chemical Co., Inc., Station B, Buffalo 7, N.Y.

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Write for samples
Casket Finishes
PRIMERS—Excellent adhesion, less sanding
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CINCINNATI VARNISH CO.
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THE VARNISH PRODUCTS COMPANY
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Most compact and efficient drum cleaner made!

The necessity for thorough cleaning of insides of drums is obvious, and this latest inside drum cleaner does the job quickly and better than any other method. Mechanism ingeniously arranged to care for end cleaning as well as sides. Investigate this machine. Descriptive literature sent on request.

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Write or Phone for Prompt service and deliveries.

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bring out the
QUALITY *you*
have built in
YOUR PRODUCT

Faithful reproductions on wood, metal, composition, hard-board and plastics. Write for details.

AMERICAN RICHWOOD PRODUCTS CO.
Graining Plate Division
104 E. Mason St., Milwaukee 2, Wis.

Cartoonist's Idea of Spray Painting Steel Drums

Mr. Steve Uminski, noted cartoonist and designer, attended a summer session of Binks West Coast Spray Painting School recently. Mr. Uminski is famed throughout Burma and China for his exploits with the Flying Tigers, for whom he designed the Hells Angels insigne. Since his discharge, he has been designing for the North American and Flying Tiger Corporations.

During a question period at Binks' summer session, a fellow student of Mr. Uminski's asked a question regarding production line painting of barrels. In reply, Mr. William Beacham, Director of Binks' Research Laboratories, explained how a spray gun could be held in each hand to spray one color on the body of the drum while painting the end of the drum another color.

With a spray gun in each hand and . . .

The inevitable remarks about sweeping the floor at the same time were made and Mr. Uminski could not let the opportunity pass without cartooning his "atomic interpretation" of what a barrel line should look like.

Marin-Mercier Represents Michigan Oven Co. in N. Y.

The Michigan Oven Co. announces the appointment of the Martin-Mercier Co., headed by Ray W. Mercier and John J. Marin, 936 Exchange St., Rochester 8, N.Y., as representatives in the Central New York territory.

Messrs. Mercier and Marin have been associated with Michigan Oven Co. for several years and are well acquainted in the area. Their engineering experience in industrial heating and other related applications provides an excellent background to be of service to present and prospective oven users.

The combined services of Michigan Oven Co. and Marin-Mercier Co. are available on any industrial oven problem.

Color for Safety and to Save Eye Strain

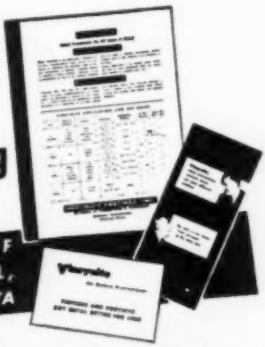
HAVE YOU ever thought of using colors in the plant to ease eye-strain and help to save the eye sight of employees? Bright sun shining through windows makes work difficult for employees who work in the direct rays, and for other employees who get bright reflected light. Sufficient light to perform each operation is a necessity, but there is a vast difference between having adequate light and a bright glare of light.

Some thought and study will aid in the correct selection of colors for walls and ceilings to reflect a soft diffused light from windows or from artificial light. In dark stair wells treads may be coated with white or light yellow paint in which some fine abrasive is mixed to prevent slipping.

The workers will take more pride in plant equipment that is painted and kept clean. This equipment should be painted with a light neutral color, for instance, light gray or green or buff, with working parts in a bright contrasting color. Push button control switches and fuse boxes should be painted with an attention arresting red so that they will stand out prominently from the rest of the equipment.

The regular operator and maintenance crew know where those control switches and fuse boxes are located, but other employees may not be familiar with the equipment. In an emergency quick action is often of the greatest importance.

Get this *new* FREE kit on Metal-Finishing ...Maintenance



INCLUDES ACTUAL SAMPLE OF VINSYNITE ON STEEL PANEL, PLUS APPLICATION AND USE DATA

Vinsynite is a metal pretreatment which greatly increases adherance of top finishes, resists rust and corrosion. It can be applied to *any* metal by simple brush, spray, dip or roller methods, needs no special equipment or chemical control. If you finish metal products or maintain metal structures, you should have this information.

SEND THE COUPON

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Send us the new information kit about Vinsynite.

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Vinsynite

COMBINES PROTECTION AND ECONOMY

Racks, Work Holders, Can Be More Profitable If . . .

USING OLD MAKESHIFT racks and work holders is definitely not an economy measure. Management must first be impressed with the importance of using the best designed and best constructed racks and work holders that can be obtained. These articles are really tools, not just "another necessary evil around the finishing room."

These racks and work holders must be correctly designed for the products they are intended to hold or support. Simple plain lines of design will help make these tools easy to use, easy to clean and easy to replace.

Racks and work holders should be made of sufficiently heavy gauge metal to adequately support the work, to provide firm and rigid support, and to resist damage from handling in the shop.

Sometimes it is possible to design racks and work holders so they will be interchangeable—that is to say, they may be used to support several different parts or products. That is fine if it's planned that way.

Those racks and holders that closely resemble each other, for instance those intended to hold right hand and left hand parts, should be provided with some sort of easy identification so the operators who load the conveyors will not have to waste time scrambling for the correct right or left rack. This identification may be made by painting the eye of the rack, which slips over the conveyor hook, a bright red, yellow, green or blue.

SENSATION of the PHILADELPHIA MATERIALS HANDLING SHOW

THE NEW LOW COST OVERHEAD CONVEYOR of revolutionary design for loads up to 60# per foot

CHAINVEYOR

We can't begin to adequately describe the advantages of Chainveyor in limited space. Simplicity of design—Reduction of unnecessary bulk and weight—Full ball bearing chain—15" radius curves—The only conveyor system with chain and curves scientifically heat-treated to "file hardness" to triple the life—Simple, rugged, positive, sprocket tooth drive—So easy to install that half of our buyers do it themselves—and *the price is most interesting.*

If your requirements fall within its capacity, send for our new catalog giving complete information.

Distributors in principal cities

United States Spring & Bumper Co.

4951 Alcoa, Box 2475 Terminal Annex Los Angeles 58, Calif

If coating of the racks by overspray is unavoidable so that the identifying color may be covered on each cycle, a 2-in. letter, R and L, cut from sheet metal, may be attached to the eye or upper stem of the rack to make identification quick and easy.

DeVilbiss Spray Painting School on West Coast

Paint finishing foremen on the west coast have a new conception of spray techniques as a result of six schools conducted last summer by George I. Stoddard, DeVilbiss Co. spray painting instructor, at the company's Santa Clara plant and the University of Santa Clara.

Mr. Stoddard said two things that give the most trouble to spray operators are improper spraying pressures and incorrect gun handling techniques.

DeVilbiss inaugurated the west coast schools last summer and it is expected that the classes will continue to be held there annually. The schools, each of one week's duration, were divided to accommodate personnel from automotive jobbers, industry, maintenance and contract painters, and government establishments.

Among the interesting aspects of the training courses, Mr. Stoddard reported, was the effect on one student, a veteran of 30 years as a painter, who recently finished a training movie on spraying techniques and after completing the school said, "I'm going to remake the picture and incorporate the correct spraying techniques so that my operators will be doing it right."

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Self Spraying Touch-Up Enamels and Lacquers for use by your dealers and distributors to cover nicks, mars, and scratches, using your own production finish or touch up paint. Laboratory facilities available for sample processing.

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- 2-kw., 110 or 220 volts
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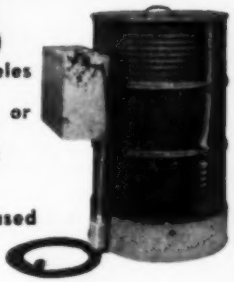

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BARON industries
241 W. Ave. 26, Los Angeles 31, Cal.

Industrial FINISHING Editorial

Foreman Objects to Sales Talk Profanity

We have always felt that profane language had no part, and didn't need to have a part, in the sales talk of any salesman representing a reputable concern, but to our surprise we recently received a letter complaining about profane language being used by some salesmen of finishing materials. It seems unbelievable to us, but this letter is typed on the stationery of a nationally-known manufacturer located in a proud northern state, and is signed by the foreman finisher. Here is part of it:

"Having been a finishing foreman for 22 years, I have also had the privilege of interviewing many salesmen as they demonstrate the value of their products. As human nature goes, we find all kinds, as we do in other groups of society. Some are polite, some overpolite, some overbearing, some know more than all of the finishing foremen put together, and many are just plain down-to-earth men.

"I can stand all of them, more or less, but there is one kind I have not mentioned, who really nauseate me. It is the fellow who uses obscene and, worse yet, blasphemous language to describe his goods. This seems to be on the increase as the days go by, and for many who have a sense of piety and respect for the Deity, it is disgusting. I trust this may be enlightening to some men who perhaps don't mean to, but who nevertheless are spoiling good salesmanship tactics and who could even be destroying an otherwise good sales contact. Respectfully yours for more decent, respectful language in selling finishing products."

If such salesmen are on the loose, let's hope that better influence from many sources will quickly impress them with the fact that successful salesmen are not only well groomed and well informed about their products, but also polite, tactful and clean with their language. The English language has plenty of descriptive, colorful, persuasive and forceful words that are in no way offensive or improper, even to a clergyman.

Our "Quality of . . . Remaining Young"

When you receive an attractive present you proudly show it to friends, so the Editor feels prompted to share with readers a very nice "bouquet" recently sent from a former writer of articles for *Industrial Finishing* . . . and now head of his own large metal products company in Baltimore. Here's the letter as written on his executive office stationery:

"Dear Mr. Rohr: Your personal note of reminder, which you attached to your letter of October 28th to our Mr. Kandel, was appreciated by me and brought back some pleasant memories of 25 years ago when I was a fairly regular contributor to *Industrial Finishing Magazine.*

"I read *Industrial Finishing* every month, as I have been doing since 1926 when I first became interested in this field. You have seemed to have attained the quality that is important

EMPLOYERS...
are you displaying this sign?

Is one of your problems a lack of good spray painters?

Many other firms, once faced with this same problem have employed a Staticote Electrostatic System. "S.E.S." is a hardy fellow and will work around the clock if you wish. He's never late or absent and he sure knows how to apply that costly finishing material with amazing economy and speed.

Yes sir, "S.E.S." is definitely a handy man to have around your finishing room. He'll pay for his keep many times over.

Do as others have done! Investigate and see how your plant can benefit by the use of Staticote Systems' Electrostatic Spray Painting Equipment. SOLD OUTRIGHT – NO RENTALS – NO ROYALTIES.

Staticote

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Engineers and Manufacturers of Complete Electrostatic Coating Systems

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use
Bleached QUALASOLE

AMERICA'S FINEST PADDING LACQUER
WILL NOT DARKEN BLEACHED WOODS
WILL NOT DARKEN WITH AGE

ORDER
A TRIAL GALLON
TODAY!

Use standard Qualasole for conventional dark finishes.

QUALATONE PRODUCTS INCORPORATED

21 GAY STREET, NEW YORK 14, N. Y.

West Coast Distributor: H. Behlen & Bro., Inc., 1755 Berkeley St., Santa Monica, Calif.

in any publication, or any business, and that is of remaining young. Your magazine reflects new trends, curiosities, and continued interest in all things relating to this field, and that is most important.

"I used to find writing for *Industrial Finishing* and other magazines, of extreme value in improving my thinking and knowledge. More than once, when writing up a system that we had put into our plant, certain short-comings became apparent, which I would correct and at the same time incorporate the improvements in my article. This made a better article, it made a better operation in our plant, and I am sure it helped to make some improvement in me.

"When I have a difficult problem I still follow the practice of writing it up. In doing so it often resolves itself, or the solution is worked out in the reorganizing of all pertinent thoughts.

"I regret that problems of finishing are only one of many problems to me today, which does not give me the opportunity to contribute to your worthy publication.

"With kindest regards and best wishes, I remain . . ."

Thank you, Mike Miller, and may more prosperity continue to alight upon you and your fine company.—Ed.

Keep in Touch With What's Going on

New products and better methods are being developed every day. Those plants where production is large enough to support a control laboratory or a research department have trained men who constantly watch for new developments. Production in the small, or even average size factories is not great enough to support a laboratory or research group, hence management must depend on other sources for information. Some of these sources are trade magazines, trade associations, house organs, direct mail advertising and, last but not least, sales representatives. All of these sources provide excellent means for keeping abreast of new developments.

More efficient methods, better materials and improved equipment provide the means for reducing operating as well as production costs. Management that is alert will be on guard at all times to learn the facts, to accept new ideas, and to be willing to make changes. The latter is most important, and the antipathy to change will probably be the most difficult to overcome.

Methods, materials and equipment that were good enough some years ago are obsolete now. Advancements have been made. It is up to management to learn about and take advantage of these improvements.

Do You Know or Can You Learn These Facts

Let us start at the beginning of a metal products finishing line. What is the correct strength of each solution in the power washer? What pressure has been established as correct for spraying these solutions? What temperature is correct for each. What is the right heat for the dry-off and bake ovens? What speed is the conveyor traveling?

Then we go to the viscosity of the enamel or the percent of solids in the lacquer. What has been worked out for these as being correct? What atomizing and fluid pressures are best, based on the finish material and the product? If paint heaters are used, what temperature is maintained to give best results?

Questions, questions, you say. Why is it necessary to know all of these things? Well it isn't really absolutely necessary, so long as everything

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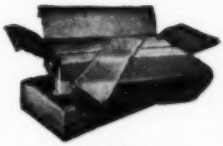

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"How Much is A Gallon of Paint Worth," price 10 cents per copy.

"The Theory and Practice of Finishing Furniture" (Five Parts), price 20 cents per copy.

"Why Color Changes in Finished Furniture," price 10 cents per copy.

"Coating the Surfaces of Products by Dipping," price 10 cents per copy.

"Technique of Finishing Small Wood Turnings, etc., by Tumbling," price 10 cents per copy.

"Flow Coating as a Means of Paint Application," price 10 cents per copy.

"Stirring and Straining," price 10 cents per copy.

"A Method Engineer Analyzes Paint Selling," price 10 cents per copy.

"Preparing and Painting Metal Specialties", price 10 cents per copy.

"Flock (What it is, its appearance, its uses both for utility and decoration)", price 10 cents per copy.

"Filler, The Theory and Technique of Application", price 10 cents per copy.

INDUSTRIAL FINISHING Magazine

1142 N. Meridian, Indianapolis 4, Ind.

is moving along smoothly, and so long as the standard quality of finish is being maintained.

But if finishing trouble develops—and it often does, even in the best and most efficiently operated plants—where does one start to look for the cause of the trouble? What does one check? What does one look for? What does one attempt to correct?

Would you believe that there are finishing rooms in this country where the answers to these questions are not available? Not known, even by those working there? This lack of knowledge is not intentional. It can be attributed to, "We just never thought much about it." Finishing, in some of these plants, is merely a stepchild; merely a means to an end.

An elaborate control laboratory is not necessary; nor are the services of a trained paint chemist. I suggest only a few pieces of relatively inexpensive testing equipment, a viscosity cup, readable thermometers on the outside of the power washer and ovens, and some young employee who has a knack for running a few tests at regular intervals, and who will keep a few records. Not much expense is involved, and if the young man is alert, it is possible that finishing troubles can be sighted afar off and averted. That is when knowledge pays off.

Parker Rust Proof Co. Opens Regional Office in Cleveland

Establishment of a new South Central Region was announced by M. B. Roosa, vice president and sales manager of Parker Rust Proof Co., Detroit, at the Company's Annual Sales-Service meeting in Detroit recently.

The new region will include the southeastern and south central states. B. L. Dittmore, veteran of 12 years on the sales-service staff of Parker, is named manager of the South Central Region. He will have men stationed strategically throughout the territory, to serve the metal working industries in these states.

The new region office is at 1246 W. 70th St., Cleveland 2, Ohio.

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More . . . Better . . . Faster. These are familiar words in plants now using New Period Finishes. Would you like to hear these words that mean greater production at less cost in your plant? Then switch to New Period Production Finishes.

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Write for 5 Gallon Working Sample at Drum Price

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BOOKS On Finishing Available

"MODERN ORGANIC FINISHES—Their Application to Industrial Products" (452 pages) new $8.50

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(Preceding Volumes also available, same price)

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Cash Must Accompany Order—Send for Descriptive Circular

INDUSTRIAL FINISHING
1142 N. Meridian St. Indianapolis 4, Ind.

Random Comment on the Industrial Scene

(Continued from page 8)

Future Auto Lights. Automobiles 50 years from now will have headlamps which, though 10 times as powerful as those of today, will not be annoying to approaching drivers. This was one of several predictions about future lighting of passenger cars for increased safety, comfort and convenience . . . made by Val J. Roper, General Electric illuminating engineer. Other forecasts include:

Fluorescent lamps will light the luggage compartment and the engine;

Infrared lamps will keep windshields free of ice and snow, and also condensation on the inside;

Instrument panels will be lighted by electroluminescence;

Fluorescent lamps, recessed in the bottoms of all doors, will light automatically when the doors are opened;

Indicator lamps will light up to show trouble in the form of a burned-out headlamp, low oil pressure, high water temperature, low oil level in the crankcase, low water level in the battery and others.

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Welcome Your Suppliers' Representatives

Don't overlook your supplier's representatives. Sometimes they have more to offer than the merchandise they sell. Most of these fellows learn to be extremely observant; they have to be if they want to stay in business. Most of them pick up ideas, some good and some bad.

You have to be the judge of the quality and adaptability of an idea, as to whether it may or may not fit into your business. Perhaps the idea or method is far removed from the particular line the representative is selling. If it is a good idea, then he has helped you—and perhaps himself, if you give him an order.

Also it is well to remember that these fellows generally know all of the news about new developments, new methods, materials and equipment. So, if he can spare the time, take him on a quick trip through the plant. It is just possible that he may come up with one or two good suggestions. One never knows where and from whom a good idea will spring.

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A service to aid industry in producing longer-lasting and better-looking products. Quick predetermination of durability and permanency by actual exposure test in South Florida. Write us today for full information.

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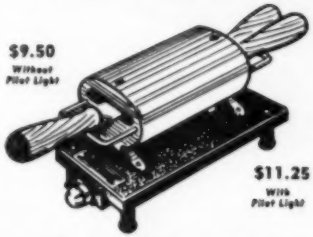

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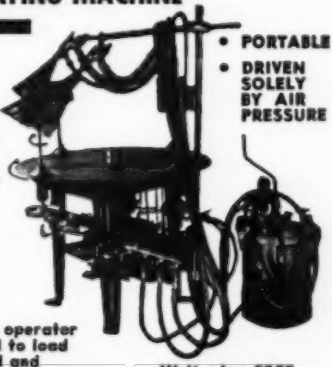

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Write for sample. Specify application and choice of vehicle.
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RONA LABORATORIES, INC., 358 Doremus Ave., Newark, N. J.

Binks Spray Painting School in Chicago; Classes in Jan. '54

Increased use of spray painting is creating greater requirements for trained personnel. To help meet this need, the Binks Mfg. Co. of Chicago will conduct a new series of Spray Painting Schools in Chicago, starting early in January.

The announced dates for three one-week sessions are as follows:

January 4 through January 8, 1954
February 1 through February 5, 1954
March 1 through March 5, 1954

Classes will be held at the Binks plant in Chicago from Monday through Friday in specially prepared quarters completely equipped for instruction purposes. Advance registration is urged.

The Binks Spray Painting School is set up particularly for training officials, foremen, supervisors, distributors, jobbers representatives and others, including men who service spray painting equipment. All class members have a common interest in spray painting and similar problems that involve spray finishing and coating.

Even those men who have never actually used a spray gun learn correct spray painting methods. Trouble-shooting gets major attention. Considerable time is given to automatic equipment. Practical applications of spray booths also covered.

William Beacham, nationally recognized spray painting authority, will again conduct the classes. Mr. Beacham, Director of Binks Customer Research Laboratory, has a broad background of experience in practical spray work. His counsel and advice on specific problems of coating and finishing will be readily available to the students.

Recently, Binks' classroom facilities were doubled and more visual training aids provided. One of the recent, and most popular additions, is a sound-slide film that explains in detail the operation of spray guns and related equipment.

Under the direction of Mr. Beacham, every class member takes spray guns apart, re-assembles and tests them. Then students actually produce such finishing defects as blooming, blushing, orange peel, shore line, etc., and learn how to prevent and remedy these errors. During the 5-day course, paint circulating systems, material handling pumps, spray booths, oil and water extractors and catalyst painting equipment are explained and demonstrated.

No tuition is charged at the Binks School. Classes, however, are limited to 40. Each student pays his transportation and expenses while in Chicago. Enrollment applications should be made two to four weeks in advance of class dates. For further information or reservations address E. F. Watts, Binks Mfg. Co., 3116-40 W. Carroll Ave., Chicago 12, Illinois.

C. W. Humphreys Named a V.P. of Shell Chemical Corp.

Cecil W. Humphreys has been appointed vice president in charge of manufacturing for Shell Chemical Corp. Mr. Humphreys had previously been general manager and manager of development for the company's manufacturing department.

CLASSIFIED ADVERTISING

POSITION WANTED.

Coatings Sales or Asst. to Sales Manager, available for Ohio and adjacent areas. Experienced in all lines and shop procedure. Good references and proven ability. Presently employed. Address IF-164, care Industrial Finishing.

FOR SALE.

Fostoria Even Ray Infra Red Paint Oven. New. Still in original shipping case. Three independent sections totalling 22-ft. adaptable for ceiling mounting. Originally sized for 1-quart size containers. Wired for maximum load 72KW, estimated load 45KW. For additional information write: M. J. Schulz, DUTTON-LAINSON CO., Hastings, Nebr.

Roof Oven Spans Two Buildings and . . .

SINCE IT IS possible to insulate the modern oven against extremely cold weather, ovens are often located on the roof of a building, to leave additional productive and storage room on the inclosed floor space. A short time ago I visited a plant where they have gone a step farther; the bake oven is not only outside the plant, but it serves as a bridge between two plant buildings.

Here is how it works: Products are finished on the first floor of one building. Some are spray painted; others are dipped. After the parts are coated in building No. 1, the conveyor that carried them rises to a height of about 25-ft. from the floor, then levels off and enters the oven which forms a covered bridge between buildings No. 1 and No. 2.

The oven "bridge" leaves a head clearance of about 20-ft. for the driveway between the two buildings so trucks can pass under it. The assembly department is located on the second floor of building No. 2. Leaving the oven, the conveyor carries the parts directly to the assembly lines.

The conveyor chain returns through the covered bridge, outside and parallel to the oven, and is elevated sufficiently to provide an all-weather foot passageway between the two buildings.

Space is highly important, and it should always be used to the best advantage, especially when conditions are such that this is at all possible.

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the non-inflammable remover

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- VARNISH
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Sales and service representative of industrial finishes and specialty coatings. B.S. degree in chemistry. Four years experience includes laboratory formulation and sales. Located in Chicago, but prefer Los Angeles area. Address IF-162, care Industrial Finishing.

POSITION WANTED.

Expert Foreman Finisher desires connection with reliable concern. 25 years' experience as foreman. Have knowledge both technical and practical in all finishing phases. Capable of meeting schedules with high quality finish. I harmoniously manage any number of people. Can furnish best of reference. All replies will be treated in confidence. Address IF-163, care Industrial Finishing.

POSITION WANTED.

Furniture finishing superintendent, 25 years' experience conveyorized and progressive systems, producing all types of high-grade bedroom and dining room furniture and TV cabinets. Ability to train help, handle any number of men or women. Develop new and maintain color line. Can produce quality work at low cost. Thorough knowledge of material. Qualified to take full charge of finishing department. Can give best of references. Address IF-156, care Industrial Finishing.

WOOD FINISH SALESMAN OR MFRS. AGENT WANTED.

By manufacturer of highest quality lacquers, sealers, stains, fillers, etc. Prefer experienced finisher who has done some selling. All or part time. Commission basis. Michigan and Ohio territory. Address IF-159, care Industrial Finishing.

SALES REPRESENTATIVE.

Experienced to handle complete line of lacquer products. Excellent opportunity for live wire. Drawing; commission. Address IF-161, care Industrial Finishing.

TECHNICAL SERVICE MAN.

For Industrial Finishes who has had some experience in formulations. BENTON-CLIMO CO., 16908 Waterloo Rd., Cleveland 10, Ohio.

INDUSTRIAL FINISHES TECHNICAL SERVICE MAN.

Have real opportunity in our sales department for an industrial finish chemist for outside customer technical service and new product development. We are a well established medium-sized expanding company. Apply to RAFFI AND SWANSON, INC., 311 Eastern Ave., Chelsea 50, Mass.

AUTOMOBILE PRIMERS AND SURFACES FORMULATOR.

We have an opening with exceptional opportunity for a man experienced primarily in formulation of Automobile Primers and Surfacers. Salary is open. Excellent employment benefits and working conditions. Replies held in strictest confidence. Write, wire or phone C. E. Wurst, JONES - DABNEY COMPANY, Caniff Street and Grand Trunk, Detroit, Michigan, TOwnsend 8-2750.

SALESMAN and SERVICE MAN.

With over thirty years experience in paints, painting, wood finishing, and research, will consider taking over sales and service work in western Pennsylvania, western N. Y., for a nationally-known manufacturer of paints and finishing materials, having business in this area, in the industrial and products finishing lines, on a direct factory representative basis, making headquarters in Erie. For further information, write, wire or phone IF-157, care Industrial Finishing.

PAINT PRODUCTION MAN.

Must have ability to supervise men and be capable of guiding color matcher and approving of colors. Salary commensurate with ability and experience. Located in Philadelphia. Write giving experience and personal history. Address IF-158, care Industrial Finishing.

BARGAINS IN FINISHING EQUIPMENT

Paasche Automatic Airpainting and Drying Unit Complete with Water Wash Booth.
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CHEMISTS for plants at Kearny, N. J. and Lafayette, Ind.
SALESMEN for various locations.
Apply in confidence to personal attention O. J. S. deBrun, President, THE EGYPTIAN LACQUER MANUFACTURING COMPANY, The Americas Building, Rockefeller Center, New York.

INDUSTRIAL PAINT SALESMEN WANTED.

Aggressive large, Mid-Central States manufacturer is seeking the services of two top flight salesmen of proven ability in the Industrial Field. Adequate laboratory and production facilities for large volumes. Compensation commensurate with ability to produce. Address IF-160, care Industrial Finishing Magazine.

SALESMAN.

Opportunity for increased earnings, a better future, and greater security is offered by manufacturer with years of experience and increased production capacity in asphalt, gilsonite, and varnish blacks; japans or enamels; aluminum finishes; varnish finishes. Will also make finishes to customer's specifications. Liberal Commission or profit-sharing method of compensation on volume business with protected territory. Full time or part time. All replies considered strictly confidential. Write THE EXCELSIOR VARNISH WORKS, INC., Cleveland 2, Ohio. Established 1890.

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White Overspray or Sludge—will pay top prices. Address IF-155, care of Industrial Finishing, Indianapolis 4, Ind.

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Buffalo 16, N. Y.

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Dirty lacquer solvent can be shipped to us for distillation and returned to you clean and ready for use. Within 200 mile radius of Louisville a substantial economy can be realized. Cost runs from 14¢ to 19¢ per gallon. KENTUCKY COLOR & CHEMICAL CO., 600 N. 34th St., Louisville 12, Ky.

WANTED TO BUY.

Will buy your dirty Thinners and Solvents. Send samples or letters giving approximate contents and solids. Address THE JOHANN CO., 8547 S. Ashland Ave., Chicago, Ill.

DRUM CLEANING CHAIN

THE VOL-U-METER COMPANY
Buffalo 16, N. Y.

OVEN—For Sale

Conveyor type, direct or gas fired recirculating air — originally used as Japan drying oven. A bar-type oven, built in sections, it has a total over-all length of 90-ft., including conveyorized dipping tanks; total over-all height, 10-ft. 6-in.; width 7-ft. 6 in. Load and unload sections are at floor level and actual drying portion is approximately 5-ft. above the floor. Was built to accommodate parts as large as used in gas stove production. Exhaust stack and various ventilating blower equipment included. Originally installed new in 1949; use discontinued in 1951. Will sacrifice for $3,500. Further details and blueprint available. Can be inspected at Evansville.

Majestic Fabricators, Inc.
Evansville 7, Indiana

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Young Brothers Co. 47

LET THIS MAN GIVE YOUR NEW FINISH A GOOD START

Before you decide on a new type of finish for your product, it will pay you to talk things over with an Advance service representative.

Chances are, he can point out some short cuts to lower your finishing costs, and at the same time show you how to side step some of the problems that may arise later on.

Each Advance service representative is a specialist in one or more phases of industrial finishing, with wide experience in the application of finishing materials to both wood and metal products.

So, give your new finish a good start. Get in touch with the Advance service representative who knows your field best.

He will hold your plans in strictest confidence.

Advance PAINT COMPANY

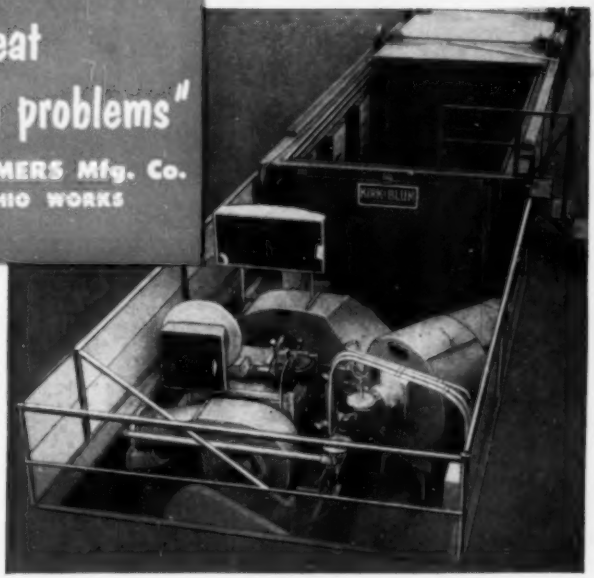
Indianapolis Indiana

MANUFACTURERS OF INDUSTRIAL FINISHES

KIRK and BLUM OVENS

"...put the heat on production problems"

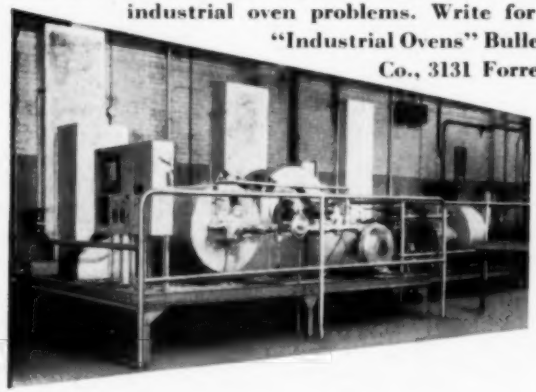
at ALLIS-CHALMERS Mfg. Co.
NORWOOD, OHIO WORKS



20-ton capacity rotor and stator varnish baking oven. Installed in a pit, this 300° F. oven is ten feet deep by fifteen feet long and twelve feet wide. It is loaded by shop crane.

Many Kirk & Blum Industrial Ovens are designed, fabricated and installed for specific production problems. Shown here are a few of the variety of K & B ovens which are used in electric motor manufacture at Allis-Chalmers Mfg. Company, Norwood, Ohio.

Put the 46 years of experience and skill of Kirk & Blum to work on your industrial oven problems. Write for complete information and "Industrial Ovens" Bulletin to The Kirk & Blum Mfg. Co., 3131 Forrer Street, Cincinnati 9, Ohio.



Heating systems for two batch type varnish baking ovens are located outside of the varnish dipping department to minimize hazards.

KIRK and BLUM
INDUSTRIAL OVENS